



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>

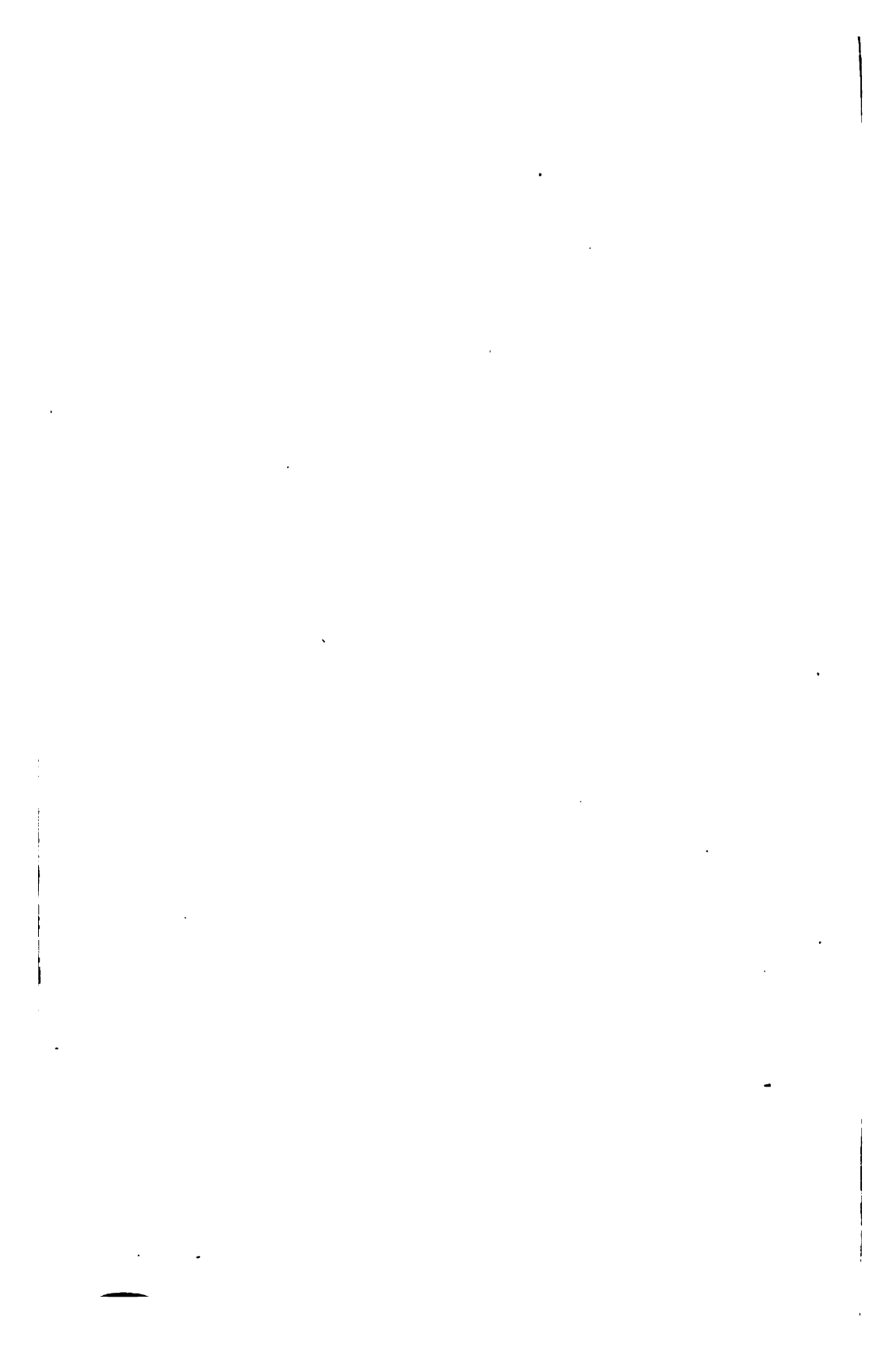
6.6.9.

BOSTON
MEDICAL LIBRARY
ASSOCIATION.

Section..... Shelf.....

No.....

LOANED BY
E. M. Buckingham, M. D.,
Nov. 28. 1879.



ST. GEORGE'S HOSPITAL

REPORTS.

EDITED BY

JOHN W. OGLE, M.D. F.R.C.P.

AND

TIMOTHY HOLMES, F.R.C.S.

VOL. VII. 1872-4.



LONDON:

J. & A. CHURCHILL, NEW BURLINGTON STREET.

MDCCLXXV.

LONDON:
BOBSON AND SONS, PRINTERS, PANCRAE ROAD, N.W

CONTENTS.

	PAGE
LIST OF PRIZEMEN	xii
I. Questions connected with Vaccination. By EDWARD T. WILSON, M.D. Oxon.	1
II. On the Effect produced on the Capillary Circulation by the Injection of Putrid Fluids into the Lymphatic System of Amphibia. By JOHN CAVAFY, M.D. Lond.	17
III. Three Cases of Cerebral Disease; with a Table of Cases of Tubercular Meningitis. By J. C. J. FENWICK, M.D. Cantab.	29
IV. Notes of Lectures on Midwifery and Diseases of Women and Children. By R. J. LEE, M.D. Cantab.	39
V. Notes on some Cases of Death after Confinement. By CLEMENT WALTER, Esq.	47
VI. Notes on Midwifery. By R. P. WINTLE, Esq.	53
VII. On the Concurrence of Zymotic Diseases. By EDGAR G. BARNES, M.D. Lond.	59
VIII. Cases of Psoriasis. By C. HANDFIELD JONES, M.B. Cantab., F.R.S.	67
IX. Exophthalmic Goitre. By W. B. CHEADLE, M.D. Cantab.	81
X. The Principles of Ophthalmic Therapeutics. By R. BRUDENELL CARTER, Esq.	89
XI. A Case of Puerperal Blood-Poisoning. By HENRY FLY SMITH, M.B. Oxon.	127
XII. Illustrations of some of the more Unusual Forms of Disease of the Abdomen, with Comments on Fistulous Openings through the Walls of this Cavity. By JOHN W. OGLE, M.D. Oxon.	133
XIII. History of a Case of Unreduced Dislocation of the Hip-Joint. By SAMUEL LEE, Esq.	169
XIV. On Pulsating Tumours which are not Aneurismal, and on Aneurisms which are not Pulsating Tumours. By T. HOLMES, Esq.	173
XV. On Consumption a Form of Septicæmia. By W. MARCET, M.D. Edin., F.R.S.	199
XVI. Flat-Foot. By CHARLES ROBERTS, Esq.	211
XVII. Two Cases of Carcinoma within the Abdomen; with Observations on Pain as a Result of Pressure on Nerves. By JOHN W. OGLE, M.D. Oxon.	217
XVIII. Notes on Iodate of Calcium, Camphorated Phenol, and Salicylic Acid as Disinfectants. By S. W. MOORE, Esq.	227

	PAGE
XIX. On Certain Drugs : their Value. By ALLAN D. MACKAY, M.B. Oxon.	287
XX. A Simple Mode of Tabulating Symptoms in Clinical Records ; with a Schedule for taking Cases. By W. OGLE, M.D. Cantab. (Derby)	251
XXI. Report of Cases admitted into the Obstetrical Department, 1878- 74. By R. J. LEE, M.D. Cantab.	257
XXII. Report of Surgical Cases for 1872. By J. WARRINGTON HAWARD, Esq.	277
XXIII. Report of Surgical Cases for 1873. By E. R. ROWLAND, Esq. .	319
XXIV. Report of Medical Cases for 1872. By FRANCIS H. LAKING, M.D. Heidelb.	361
XXV. Report of Medical Cases for 1873. By FRANCIS H. LAKING, M.D. Heidelb.	381
INDEX	395

LIST OF SUBSCRIBERS TO THE "ST. GEORGE'S HOSPITAL REPORTS."

Abercrombie, J., M.D., Cheltenham.
 Acland, H. W., M.D., Regius Professor of Medicine, Oxford.
 Allbutt, T. C., M.D., 88 Park-square, Leeds.
 Andrews, H. C., M.D., 1 Oakley-square, N.W.
 Archer, H. R., M.D., Royston, Herts.
 Arlidge, J. T., M.D., Blurton House, Stoke-on-Trent.
 Atkinson, William, Ewelme, Wallingford, Oxon.
 Axham, Fred. Wm., Dr., 1 Brewer-street, Golden-square, W.
 Bagshawe, F., M.D., 5 Warrior-square, St. Leonard's-on-Sea.
 Banner, Samuel, 11 Delamere-street, Westbourne-square, W.
 Barclay, A. W., M.D., 23A Bruton-street, Berkeley-square, W.
 Barnes, Edgar G., M.B., Eye, Suffolk.
 Barnes, Robert, M.D., 81 Grosvenor-street, Grosvenor-square, W.
 Barratt, Dr., 8 Cleveland-gardens, W.
 Barrett, Howard, 3 Tavistock-square, W.C.
 Bennett, C. H., M.D., College House, Hammersmith, W.
 Bennett, W. H., Dr., 1 St. George's-place, S.W.
 Bevan, T. K., M.D., 8 George-terrace, Hill-street, Peckham, S.E.
 Blackett, J. B., 28 Green-street, Grosvenor-square, W.
 Blackstone, Joseph, 15 Gloucester-road, Regent's-park, N.W.
 Blake, C. P., M.D., Anglesey House, Torquay.
 Blandford, G. F., M.D., 71 Grosvenor-street, W.
 Blashfield, C. W., 9 Denham-road, Peckham, S.E.
 Bowles, R., M.D., 8 West-terrace, Folkestone.
 Bradford, E., 4 Roxborough-park, Harrow.
 Braine, F. W., 56 Maddox-street, W.
 Brigham, Henry G., M.D., Dalby House, Ilkeston, Derby.
 Brodhurst, B. E., 20 Grosvenor-street, W.
 Brodie, G. B., M.D., 56 Curzon-street, Mayfair, W.
 Bruorton, William, New Radnor, Kington, Hereford.
 Bucknill, E., M.D., Rawtenstall, near Manchester.
 Bullock, H., Spring-grove, Isleworth, W.

- Bulteel, C., 62 Durnford-street, Stonehouse, Plymouth.
 Bumpsted, T. Brooks, Cambridge.
 Callender, G. W., 47 Queen Anne-street, Cavendish-square, W.
 Carnley, H., M.D., 56 Charlotte-street, Hull.
 Carter, R. B., 69 Wimpole-street, Cavendish-square, W.
 Cavafy, J., M.D., 13 Arlington-street, Piccadilly, W.
 Ceely, R., Aylesbury.
 Cheadle, W. B., M.D., 2 Hyde-park-place, Cumberland-gate, W.
 Chevallier, Barrington, M.D., The Grove, Ipswich.
 Clarke, J., M.D., 42 Hertford-street, W.
 Clarke, J. A. Lockhart, M.D., 64 Harley-street, W.
 Coles, G. C., 20 Great Coram-street, Russell-square, W.C.
 Collingwood, J. E., Corby, Grantham.
 Collyer, J., M.D., Oak House, Enfield, Middlesex.
 Cooper, W., M.D., 40 Great Marlborough-street, W.
 Copeman, E., M.D., Upper Close, Norwich.
 Courtney, S., Leatherhead, Surrey.
 Cowell, G., 19 George-street, Hanover-square, W.
 Cox, W. A., M.B., North Staffordshire Infirmary, Hartshill, Stoke-on-Trent.
 Curtis, W. jun., Alton, Hants.
 Dalby, W. B., M.B., 18 Savile-row, W.
 Darke, F. P., Salisbury.
 Davson, F. A., M.D., Broadstone House, Dartmouth.
 Dickinson, Edward H., M.D., 162 Bedford-street, Liverpool.
 Dickinson, W. H., M.D., 11 Chesterfield-street, Mayfair, W.
 Dodd, H. A., 10 Seymour-street, Portman-square, W.
 Dodsworth, F. C., M.D., Oxford Villa, Turnham-green, W.
 Douglas, Claude, Dr., 2 Hillary-place, Leeds.
 Dudfield, T. O., M.D., 8 Upper Phillimore-place, Kensington, W.
 Duka, T., M.D., 38 Montagu-square, W.
 Duncan, P. C., M.D., 32 New Cross-road, S.E.
 Duncan, T., M.D., Cedar-grove, Richmond, S.W.
 Du Pasquier, C. F., 62 Pall Mall, S.W.
 • Eaton, James, Castle-gate House, Grantham.
 Ebsworth, Alfred, 11 Collingham-place, Cromwell-road, South Kensington.
 Eccles, E., New Town, Longridge, Preston, Lancashire.
 Edis, Thomas, Gloucester.
 Edgelow, T., 13 Savile-row, W.
 Emerson, W., 183 Kentish Town-road, N.W.
 English, T. J., 128 Fulham-road, S.W.
 Ewart, William, 20 Leinster-square, Bayswater, W.

Ewen, A. B., Long Sutton, Wisbeach.
Ewens, J., Barton Lodge, Cerne Abbas, Blandford, Dorsetshire.
Falls, W. S., M.D., Marden-Ash, Bournemouth, Hants.
Fenwick, J. C. J., M.D., 30 Devonshire-street, W.
Fisher, A. F., Biggleswade, Beds.
Fisher, F. R., 79 Grosvenor-street, W.
Forder, Thomas, 29 St. Thomas's-street, Winchester.
Fox, C. J., 27 Mortimer-street, Cavendish-square, W.
Fox, E. L., M.D., Church House, Clifton.
Foxon, F., 231 Brompton-road, S.W.
Freeborn, Dr., 38 Broad-street, Oxford.
Fuller, W., 111 Piccadilly, W.
Fussell, E. F., M.D., 23 Clifton-terrace, Brighton.
Garland, E. C., Pitney House, Yeovil.
Gibson, J. E., Medina Lodge, West Cowes, Isle of Wight.
Gilbertson, J. B., M.D., 81 Fishergate, Preston.
Giles, S., M.D., 2 Kent Villa, Lewisham-road, Deptford, S.E.
Godden, Jos., Sudley House, Birkenhead.
Godson, C., Barnet, Herts.
Goldsmith, G. P., 3 Harpur-place, Bedford.
Gray, F. J., Rugeley, Staffordshire.
Greenhill, A. F., Dr., 1 Castle Villas, Muswell-hill.
Greig, C., 16 York-place, Clifton.
Hale, C. D. B., M.D., 91 Ladbroke-grove, Notting-hill, W.
Hall, N. F., The Neckinger House, Bermondsey, S.E.
Hamilton, A., Highmoor, Parkstone, Poole.
Hammond, G., Irthlingborough, Higham Ferrers.
Harmer, W. M., M.D., North-Grove House, Hawkhurst.
Harper, Gerald, St. George's Hospital.
Harrison, G., 11 Paragon, Streatham-hill, S.W.
Harrison, Richard, H.M. Prison, Prince-town, Horrabridge, Devon.
Harrison, W., M.D., Gargrave, Leeds.
Haward, Edwin, M.D., 9 Harley-street, W.
Haward, J. Warrington, 5 Montagu-street, Portman-square, W.
Haward, —, M.D., M'Gill College, Montreal.
Hawkins, Charles, 27 Savile-row, W.
Hawkins, Cæsar H., 26 Grosvenor-street, W.
Henderson, A., Great Malvern.
Henning, John, Warwick.
Hewby, J. P., 1 Archer Villas, Westbourne-grove West, W.
Hewett, Prescott G., 1 Chesterfield-street, Mayfair, W.
Hill, T. W., Dr., 58 Cromwell-road West, South Kensington, S.W.
Hocken, C. E., M.D., Truro-road, Wood-green, N.

- Hodgson, G. F., 52 Montpellier-road, Brighton.
 Holderness, W. B., Wykeham House, Huntingdon.
 Holmes, T., 18 Great Cumberland-place, W.
 Hope, S. Wilson, L.R.C.P., Petworth, Sussex.
 Hotham, R. H., 10 Ely-place, Holborn, E.C.
 Hudson, R. S., M.D., West-end, Redruth, Cornwall.
 Hunt, W. J., M.D., Hoxton-House Asylum, N.
 Hunter, C., 30 Wilton-place, Belgrave-square, S.W.
 Hutton, C., M.D., 26 Lowndes-street, S.W.
 I'Anson, T. F., M.D., Whitehaven.
 Iles, H. W., M.D., Watford, Herts.
 Jackson, A., St. James's-row, Sheffield.
 Johnstone, Athol, 61 Dyke-road, Brighton.
 Jones, T., M.D., 19 Chapel-street, Belgrave-square, S.W.
 Keen, W., 2 Royal Avenue, Chelsea, S.W.
 Kenyon, G. A., M.D., Chester.
 Key, A. Cooper, 21 Woodstock-street, New Bond-street, W.
 Kittermaster, James, M.D., Meriden, Coventry.
 Lacy, C. Lacy, M.B., St. George's Hospital.
 Lake, G. R., 36 Gloucester-gardens, Paddington, W.
 Lattey, J., L.R.C.P., 26 Upper Phillimore-place, Kensington, W.
 Ledgard, W. E., M.D., Kirkby-Malzeard, Ripon.
 Lee, F. Fawson, M.B., 6 St. Anne's-street, Salisbury.
 Lee, Henry, 9 Savile-row, W.
 Leigh, T., 1 Marlborough-place, Brighton.
 Leigh, W., L.R.C.P., Annandale House, Chiswick, W.
 Lewis, Henry, M.D., West-terrace, Folkestone.
 Lilly, H. W., 57 Queen's-road, Norland-square, W.
 Liverpool Medical and Surgical Reports, Editors of, 48 Church-street, Liverpool.
 Lomas, W., M.D., 99 Gower-street, W.C.
 Lovell, F. O., 150 Alexandra-road, St. John's-wood, N.W.
 M'Cormac, W., M.D., 13 Harley-street, W.
 M'Hardy, M. M., 34 Stanley-street, Eccleston-square, S.W.
 Mackay, A. D., M.D., Stoney Stratford, Bucks.
 Mackinlay, J. E. H., St. George's Hospital.
 Maconchy, John K., M.D., Infirmary House, Downpatrick.
 Marcet, W., M.D., Cannes.
 Martin, E., Victoria House, Weston-super-Mare.
 Maxwell, Charles, M.D., Charleville House, Royal-park, Clifton.
 Mayor, Thos. O., Apsley-road, Clifton.
 Medical Book Club, per Mr. Braine, 56 Maddox-street, W.
 Merriman, J. J., 45 Kensington-square, W.

Midland Medical Society, per Mr. Mackey, Newhall-street, Birmingham.
Milner, W., 45 Lower Belgrave-street, S.W.
Morgan, J., 3 Sussex-place, Hyde-park, W.
Mosely, B. E., 5 Grosvenor-street, W.
Mould, J. T., 1 Onslow-crescent, Brompton, S.W.
Nairne, R., M.D., 19 Whitehall-place, S.W.
Napier, W. D., 22 George-street, Hanover-square, W.
Nicholls, James, M.D., Chelmsford.
Noad, H. C., L.R.C.P., East Cowes Villa, Lower Norwood.
Noble, John, Preston, Lancashire.
Norman, G. A., M.B., Glendower-street, Monmouth.
Nourse, W. E. C., 11 Marlborough-place, Brighton.
Ogle, John W., M.D., 30 Cavendish-square, W.
Ogle, W., M.D., 25 Gordon-street, Gordon-square, W.C.
Ogle, William, M.D., Derby.
O'Grady, E. S., M.D., 105 Stephen's-green South, Dublin.
Page, W. I., Wimbledon, S.W.
Palmer, J. F., L.R.C.P., 120 King's-road, Chelsea, S.W.
Parker, A. E., 129 Finborough-road, West Brompton, S.W.
Parr, G. C., M.D., 18 Upper Phillimore-place, Kensington, W.
Parry, H. H., Kidlington, Oxon.
Partridge, T. B., 14 Redcliffe-gardens, South Kensington, S.W.
Payne, J. F., M.D., 6 Savile-row, W.
Peregrine, T., M.D., 8 Half-moon-street, W.
Phillips, G. R. T., 17 Garway-road, Leinster-square, W.
Philpot, H. J., L.R.C.P., Cressingham House, Peckham Rye, S.E.
Pick, T. P., 7 South Eaton-place, S.W.
Pitman, H. A., M.D., 28 Gordon-square, W.C.
Pollock, G. D., 36 Grosvenor-street, W.
Power, H., 37A Great Cumberland-place, W.
Preston Medical Society, per Mr. Arminson, 7 Lune-street, Preston.
Probert, James, Pencebach House, Merthyr-Tydfil.
Procter, W., M.D., 24 Petergate, York.
Radford, T., M.D., Moorfield, Higher Broughton, Manchester.
Ransford, G., L.R.C.P., 27 Gloucester-place, Hyde-park, W.
Ree, F., St. George's Hospital.
Rice, M. W., M.D., 8 Sloane-terrace, S.W.
Risdon, Alfred, High-street, Marlborough.
Roberts, A., 12 Young-street, Kensington, W.
Roberts, Charles, Uxbridge.
Roberts, C., 2 Bolton-row, Mayfair, W.
Roberts, W. P., Cheshunt.
Roe, W. H., M.B., 15 Leinster-gardens, W.

- Rogers, H., M.D., 24 Stanford-road, Kensington.
 Ross, G., M.D., 11 Hart-street, Bloomsbury-square, W.C.
 Rouse, J., 2 Wilton-street, Grosvenor-place, S.W.
 Rowland, E. R., M.D., The Coppice, Henley-on-Thames.
 Royston, C., M.D., 1 St. Stephen's-crescent, Westbourne-park, W.
 Sabben, J. T., M.D., Northumberland House, Stoke Newington, N.
 Samuel, William, Pontardawe, Swansea.
 Scatliff, J. M. E., 13 Charlotte-street, Marine Parade, Brighton.
 School of Medicine, Park-street, Leeds.
 Scott, R. F., Barking.
 Searle, George O., Brixham, Devon.
 Seaton, D., Oakham, Rutland.
 Sharp, H. L., 24 Talbot-square, Hyde-park, W.
 Shearman, E. J., M.D., Moorgate, Rotherham.
 Sherwood, A. P., St. George's Hospital.
 Shield, Robert D., Buckingham.
 Sibson, F., M.D., 59 Brook-street, W.
 Sims, F. M., 25 Half-moon-street, Piccadilly, W.
 Smart, F. G., M.D., Belvedere House, Tunbridge Wells.
 Smith, Edward, M.D., Battle, Sussex.
 Smith, H. Fly, M.D., 1 Queen's-crescent, Haverstock-hill, N.W.
 Smith, Heywood, M.D., 2 Portugal-street, W.
 Spence, John, Bedale, Yorkshire.
 Spitta, R. J., M.D., Clapham Common, S.W.
 Staff, G. T. A., Wadebridge, Cornwall.
 Steet, G. C., Melbourne House, Roslyn-hill, Hampstead, N.W.
 Stevens, C. H. S., 15 Gloucester-terrace, Campden-hill, W.
 Stiles, F. M., The Lawn, Merton, S.W.
 Stirling, E. C., St. George's Hospital.
 Strong, H. J., M.D., 64 North End, Croydon.
 Sturges, O., M.D., 85 Wimpole-street, W.
 Sutherland, H., M.B., 6 Richmond-terrace, S.W.
 Sutton, Wm., M.D., Camden-crescent, Dover.
 Symmons, F., East-hill, Colchester.
 Tatum, G. R., New-street, Salisbury.
 Tegart, E., 49 Jermyn-street, S.W.
 Tepper, John, 27 Upper George-street, Portman-square, W.
 Thompson, H., M.D., 53 Queen Anne-street, W.
 Thompson, R., M.D., 9 Cranley-place, Onslow-square, S.W.
 Thorn, Wm., 87 Harrow-road, W.
 Tuke, Harrington, M.D., Manor House, Chiswick, W.
 Turner, Geo., 9 Sussex-gardens, Hyde-park, W.
 Turner, W. F. J., M.D., Vernon House, Ryde, Isle of Wight.

Underhill, Frank, 363 Moseley-road, Birmingham.
Vasey, C., 5 Cavendish-place, W.
Venning, Edgecombe, 1st Life Guards, 24 Belgrave-square, S.W.
Vesey, T. A., M.D., West-view, Rosstrevor, Co. Down.
Wadham, W., M.D., 12 Park-lane, W.
Walford, Edward, 2 Paragon, Ramsgate.
Walker, George E., The Shrubbery, Carisbrook, Isle of Wight.
Walter, Clement C., Dover.
Warden, C., M.D., 39 Temple-street, Birmingham.
Warwick, Percy, Ravenscroft, Lambert-road, Brixton Rise, S.W.
Webb, F. E., 113 Maida Vale, W.
Welch, C., 38 Ebury-street, S.W.
Wells, Edward, M.D., Reading.
Wharton, H. S., Gosport.
Whipham, T. T., M.B., 37 Green-street, W.
White, A. D., M.D., 56 Chancery-lane, W.C.
Wickham, J. C., M.D., Hill House, Tetbury, Gloucestershire.
Wilks, S., M.D., 77 Grosvenor-street, W.
Williams, C. T., M.D., 78 Park-street, Grosvenor-square, W.
Williams, R. H., 66 Lemon-street, Truro.
Wilson, E. T., M.D., Westall, Cheltenham.
Wilson, R., 1 Church-street, Grantham.
Wintle, R. P., 4 Warwick-gardens, Kensington, W.
Wise, T., M.D., 1 The Terrace, Camberwell, S.E.
Wood Medical Journal Club, Philadelphia, U.S., per Mr. Stevens,
17 Henrietta-street, Covent-garden, W.C.
Woodward, Geo., The Chestnuts, Upper Tooting, S.W.
Wynter, H. B., Wandsworth Common, S.W.
Young, Henry, Southridge House, Hindon, Wilts.

LIST OF PRIZEMEN.

SESSION, 1869-70.

The Acland Prize	Mr. E. C. BABER.
The Henry Charles Johnson	GOLDSMITH.
Third Year's Proficiency	" A. B. NORMAN.
Second " "	" WINTERBOTTOM.
First " "	" EVANS.

SESSION, 1870-71.

Sir Charles Clarke's Prize	Mr. EWART.
Sir Benjamin Brodie's	" MCHARDY.
The Acland	" WARDEN.
The Henry Charles Johnson	" W. H. BENNETT.
The Treasurer's	" THRUPP.
The Thompson Medal	" THRUPP.
Third Year's Proficiency	" GOLDSMITH.
Second " "	" EVANS.
First " "	" JOHN SCATLIFF.

SESSION, 1871-72.

The William Brown Exhibition	Mr. EVANS.
Sir Charles Clarke's Prize	" DOUGLAS.
Sir Benjamin Brodie's	" MORGAN.
The Acland	" ENGLISH.
The Henry Charles Johnson	" SPITTA.
The Treasurer's	" W. H. BENNETT.
Third Year's Proficiency	" W. H. BENNETT.
Second " "	" JOHN SCATLIFF.
First " "	" W. A. ELLIS.

SESSION, 1872-73.

The William Brown 100l. Exhibition	Mr. E. C. BABER.
" " " 40l. "	" ENGLISH.
Sir Charles Clarke's Prize	" SPITTA.
Sir Benjamin Brodie's	" HARPER.
The Acland	" SPITTA.
The Henry Charles Johnson	" BLAKE.
The Treasurer's	" W. H. BENNETT.
The Thompson Medal (Gilt)	" JOHN SCATLIFF.
" " " (Silver)	" HARDY.
Third Year's Proficiency	" JOHN SCATLIFF.
Second " "	" W. H. BULL.
First " "	" J. R. W. WEBB.

SESSION, 1873-74.

The William Brown 40l. Exhibition	Mr. HARDY.
Sir Charles Clarke's Prize	" BULL.
The Brackenbury Prize in Medicine	" FROST.
" " " Surgery	" FROST.
Sir Benjamin Brodie's	" BULL.
The Henry Charles Johnson	" DUNBAR.
The Treasurer's	" SPITTA.
Third Year's Proficiency	" BULL.
Second " "	" WYNN WEBB.
First " "	" F. GOODCHILD.

ST. GEORGE'S HOSPITAL REPORTS.

I.

QUESTIONS CONNECTED WITH VACCINATION.

By EDWARD T. WILSON, M.D. Oxon.

7 WHEN Jenner bequeathed his great gift of vaccination to England and to the world, it was in the full conviction that 'the annihilation of the smallpox, the most dreadful scourge of the human species, must be the final result of this practice.*' Yet after the lapse of more than seventy years the tables of the Registrar-General make it only too plain that the plague is not stayed. During the year 1871, for instance, in England and Wales alone no less than 13,126 persons fell victims to this one disease, and epidemics of smallpox recur with tolerable regularity in all the large towns of the country. There are probably few members of the medical profession who do not now believe that if vaccination and revaccination were thoroughly and perfectly performed on the whole population, and if isolation of smallpox cases could be systematically carried out, smallpox would cease to exist. Why, then, is it still endemic in England, a country where vaccination is compulsory by law, and where revaccination is certainly not discouraged? The bare question is a re-

* From Dr. Jenner's evidence before the Committee of the House of Commons, March 22, 1802; collected by Rev. G. C. Jenner; London, 1805.

flection on the medical profession ; for medical men have had it very much their own way in framing the Vaccination Acts, and have themselves to blame in great measure for a failure which is only too patent. In proof of this I need only refer to the Reports of the medical inspectors under the Privy Council year by year, from 1860 to the present time. The evidence, collected by these gentlemen with the most scrupulous care, leaves no doubt that the prevalence of smallpox is due,

1. To neglected and postponed vaccination.
2. To the imperfect and insufficient manner in which vaccination is performed.

It will be seen, however, that one cause is very intimately connected with the other ; for the apathy and suspicion, which lead to neglect and postponement, are but the outcome of accidents which ought not to have occurred, and of a failure in the protective power of vaccine due in too many instances to a careless or imperfect performance of the operation. The existence of a widespread and still extending distrust in vaccination cannot be ignored, and there is danger of its reaching very formidable dimensions, fomented as it is by unscrupulous agitators, if some means are not taken to check it ; and these means must be nothing less than an improved vaccination on a national scale, a falling back on the first lines of Jenner, the supply by Government of a lymph which shall be beyond suspicion, and a more rigid enforcement of the law under medical, instead of Poor-law, supervision.

The scope of the present paper would not admit of any general treatment of this large subject. I have selected, therefore, two points which seem to have a very practical bearing. The first is, revaccination—how often should it be repeated ? The second, animal vaccination as a source of supply for government lymph.

Setting on one side the trivial and grotesque objections often raised by the anti-vaccinators, the prevalent distrust of vaccination may be traced to

1. Doubts as to its protective power.
2. Doubts as to the purity of the lymph.

And it may be well to inquire whether such suspicions are not grounded in truth.

In the year 1839 an elaborate Report was drawn up by a committee of the Provincial Medical and Surgical Association, in which it was distinctly avowed 'that systematic revaccinations appear to us uncalled for and liable to several objections;' the first of which is that 'the practice implies that the virtues of cowpock are less permanent than we believe them to be.* We are far removed from that confidence now, and the grounds on which so important a change in opinion are based deserve the closest attention. It has been affirmed by the highest authorities both in England and on the Continent, that the primary vaccination of the present day does not carry with it the same protective power that it did in the time of Jenner. For much valuable evidence on this head from French and German sources, I may refer to Professor Trousseau's *Clinical Medicine*.† In England the idea seems based on two distinct series of facts; the apparent increase in the number of smallpox cases occurring in vaccinated persons, and the increased success of revaccination. From the statistics of the Smallpox and Vaccination Hospital, first under Dr. Gregory, and afterwards under Dr. Marson, we learn that the proportion of vaccinated cases to the whole number admitted was,

In 1810	.	.	.	.	.	1 in 30.
„ 1815	.	.	.	.	.	1 „ 17.
„ 1819	.	.	.	.	.	1 „ 6.
„ 1821	.	.	.	.	.	1 „ 4.
„ 1822	.	.	.	.	.	1 „ 3½.†

while from 1836 to 1851 inclusive they were no less than 53 per cent.§

Every allowance must, of course, be made for the preponderance of unvaccinated persons in the early days of vaccination, and for the gradual extension of the custom among the people; but the tables certainly show a uniform

* *Transactions of the Provincial Medical and Surgical Association*, vol. viii. p. 72.

† *Translation Sydenham Soc.*, vol. ii. p. 139, &c.

‡ *Medico-Chirurgical Transactions*, vol. xii.

§ *Ib.* vol. xxxvi. p. 371.

and steady increase in the number of persons unprotected by a previous vaccination, and, by inference, a gradual failing in the protective power of primary vaccination, or a shortening of the time over which that protection extends. It has never, however, been seriously suggested, since the elaborate inquiry by the Board of Health in 1857, that Jenner's lymph has degenerated; nor has the 'change-of-constitution' theory been brought in to explain any universal defect in vaccinal protection. Probably a third and more likely cause would be found in the carelessness of vaccinators, and a falling away from those first principles on which Jenner so urgently insisted; for Dr. Marson's statistics show that out of 2787 cases admitted with vaccination-cicatrices on their arms, 48·6 per cent had but one cicatrix, 31·8 per cent had two, 9·8 per cent had three, and 9·6 had four or more.* The Reports of the Privy Council inspectors also prove beyond a doubt that the early canons of Jenner are largely neglected, and that the average of fully-protected persons in certain districts of England is singularly low.

The second series of facts drawn from the increased success of revaccinations deserves more than a passing notice, for much misapprehension seems to exist on the subject. It has been asserted on the highest authority that revaccination is more successful at the present day than it was in the time of Jenner. Dr. Marson mentions the change as going on under his own eye. 'The effect,' he says, 'produced by revaccination sixteen or seventeen years ago was, with some few exceptions, nothing more than a little irritation, or, at most, an abortive vesicle with irregular areola; but during the last three or four years I have seen a great many persons on whose arms the vesicles produced by revaccination have been quite or nearly perfect, *even on those who bore good cicatrices from the first vaccination.*'†

We learn, however, from Dr. Seaton's article on vaccination,‡ that in the Wirtemberg army, 1831-5, 13,861

* Loc. cit. p. 373.

† *Medico-Chirurgical Transactions*, vol. xxxvi.

‡ Russell Reynolds's *System of Medicine*.

revaccinations occurred, with the following result per 1000 of persons revaccinated :

	In those who bore good vaccination-marks.	In those who bore doubtful marks.
Success perfect	310·4	280·7
Success modified	280·5	259·0
None	409·2	460·4

In the British army, 1861, out of 6448 cases :

	In those who bore good vaccination-marks.	In those who bore doubtful marks.
Success perfect	445·9	349·0
Success modified	199·1	403·3
None	304·9	247·6

In the British army, 1871, when the number of revaccinations reached the enormous amount of 39,844, the results were :

	In those who bore good vaccination-marks.	In those who bore doubtful marks.
Success perfect	338·0	362·7
Success modified	380·2	347·8
None	281·8	289·4*

Statistics of this kind must of course be cautiously used, for the limits of error must be very wide indeed ; but it is remarkable that effects which Dr. Marson, with his large experience, considered exceptional in 1853 should occur in 44·5 per cent of revaccinations in 1861, and in 33·8 per cent in 1871 ; while abortive revaccination, which before 1840 was the rule according to Dr. Marson, is seen in 30·4 per cent only of those with good cicatrices in 1861, and in 28·1 only in the year 1871. It is true that very much the same success attended revaccination in those who bore marks of smallpox ; but that only raises the question how far a successful revaccination is a test of the unprotected state.

The division adopted in the Army Blue-books, of arms bearing good cicatrices and arms bearing doubtful cicatrices, is quite inadequate, without some particulars as to the number of the marks or the area of the cicatricial surface. Much stress has lately been laid on the amount of surface affected in vaccination, and all statistics which bear upon this point are conclusive as to its paramount

* *Army Report for 1871.*

importance. In the last volume of these *Reports* a short but very instructive series of cases is given :

Revaccination.	Number of primary cicatrices.					
	None.	One.	Two.	Three.	Four.	More than Four.
Percentage of successful cases	66·6	63·1	38·9	38·0	33·3	25·0
„ abortive „	33·4	31·6	51·1	56·5	55·0	65·6
„ no effect „	·0	5·3	10·0	5·5	11·7	9·4

From which it is apparent that there is a progressive difference in result, corresponding to the number of cicatrices; a difference which is still farther brought out in another table, in which the numbers and quality of the cicatrices are combined; but the number of successful cases is very remarkable, even where there are three or more *good* cicatrices, for it is as much as 37·2 per cent.

In St. Petersburg, where the traditions of Jenner have been rigidly observed, and where the number of punctures has never been allowed to fall below three (it was at one time six on each arm), Dr. Frobélius, the able administrator of the Foundling, writing in 1869, says, that of 1043 revaccinations in connection with that institution, 14 only, or 1·3 per cent, were successful; 104, or 9·9 per cent, gave modified results; and no less than 925, or 88·6 per cent, gave no result at all.*

This is a striking contrast, and highly favourable to primary vaccination in St. Petersburg, if we remember the fact, well known to Jenner, that 'although the cowpox shields the constitution from the smallpox, and the smallpox proves a protection against its own future poison, yet it appears that the human body is again and again susceptible of the infectious matter of the cowpox,'† and that it is possible that so small a number as 14 out of 1043 may have come under this rule. As regards England, however, the fact that primary vaccination does not give the same protection as formerly, appears to be placed beyond dispute; at the same time it is necessary to define

* 'Notiz über die Vaccination im St. Petersburger Findelhanse,' von W. Frobélius, *St. Petersburg Medicinische Zeitschrift*, 1869, 1 Heft.

† *An Inquiry into the Causes and Effects of the Variolæ Vaccinæ*, by Edward Jenner, M.D., London, 1798; cf. also a paper by Robert Ceeloy, Esq., *Transactions of Provincial Medical and Surgical Association*, vol. viii. pp. 68, 418.

what is meant by an assertion so sweeping. It certainly has not been proved that primary vaccination thoroughly and efficiently performed is not as lasting in its effects as it ever was. All that is intended is so well and so clearly given in a recent memorandum of the Privy Council, that I cannot forbear to quote the passage: 'By vaccination in infancy, if *thoroughly well performed and successful*, most people are *completely insured for their whole lifetime* against an attack of smallpox. . . . If, however, the vaccination in early life have been but imperfectly performed, or have from any other cause been imperfectly successful, the protection against smallpox is much less satisfactory, neither lasting so long, nor while it lasts being nearly so complete as the protection which first-rate vaccination gives. Hitherto, unfortunately, there has *always been a very large* quantity of imperfect vaccination, and, in consequence, the population always contains very many persons who, though nominally vaccinated, and believing themselves to be protected from smallpox, are really liable to infection. . . . Partly because of the existence of this large number of imperfectly vaccinated persons, and partly because also even the best infantine vaccination sometimes in process of time loses more or less of its effect, it is advisable that all persons who have been vaccinated in infancy should, as they approach adult life, undergo revaccination.*

Revaccination, then, is advised for all; and this once granted, a first line of defence would seem to be somewhat lightly abandoned, and we are launched on a sea of conjecture. The Privy Council recommends that revaccination should be performed once after the age of fifteen, and that it should not be repeated; the New-York authorities advise its repetition every five or six years, or oftener, in proportion to exposure to smallpox;† and the late Professor Trousseau names once in five years, on the ground that, if not necessary, it is at all events free from objection.‡

But revaccination, even if free from risk, is not exactly

* *Report of Local Government Board, 1871-2, p. 318.*

† *Report of the Board of Health New York, 1871, p. 320.*

‡ *Clinical Medicine, vol. ii. p. 145.*

a pleasant operation, and few persons would undergo it unless urged by panic or a reasonable conviction of its necessity.

At present the public are allowed to judge and decide pretty much for themselves on a purely medical subject. A panic comes; arms are freely offered, and revaccination is performed in most cases as a matter of course, without question and without thought. There is really no limit to the ignorance of the public on this subject. Revaccination without result is looked upon as disappointing, and people are often content with nothing less than an angry sore, followed by general derangement of the system. It would seem, then, highly desirable that the medical profession should hold definite views, and state them plainly; that, instead of giving way to panics, they should resist them by opposing reason and calm judgment to fright and prejudice. What, then, should be the rule of practice with regard to revaccination? That it is necessary at the present day no one will doubt. Probably, if primary vaccination were as perfect as it is imperfect, it might still be desirable; for Dr. Gregory long ago showed that modified smallpox, even in a confluent form, might occur in individuals who bore as many as four perfectly normal and well-marked cicatrices upon their arms.*

Another fact is pretty generally acknowledged, viz. that revaccination, however successful, can never quite make up for an imperfect primary vaccination, and such cases might call for exceptional treatment. In ordinary cases, however, showing from two to four well-formed and normal cicatrices, it seems beyond a doubt that a single revaccination, with result or without result,† is, save in certain exceptional cases, sufficient for a lifetime.

There seems no adequate ground for supposing that the effects of *thoroughly good* primary vaccination die out with age; and if this is so, the medical profession should state it plainly, and stand by the consequences. In some countries panics are relied upon in place of legislation for

* *Medico-Chirurgical Transactions*, vol. xxiv. p. 18.

† The Privy Council Memorandum says: 'Revaccination once properly and *successfully* performed does not appear ever to require repetition.' It is not easy to say, however, what '*successfully*' means in this case.

promoting primary vaccination as well as revaccination. The success, however, is disappointing, in spite of three hundred thousand vaccinations within a year in New York alone; and it is curious to find the sanitary authorities in New York, Massachusetts, and Philadelphia, where liberty of the subject is so sacred, suggesting, as with one voice, the promulgation of a compulsory code.*

It is a common complaint and source of difficulty in America, as it is in England, that panics tend to exhaust the supplies of lymph, and send vaccinators to second-rate sources. And this leads directly to the second point which I wished to consider, viz. the supply of a lymph which should be practically inexhaustible, and at the same time above suspicion.

It is one of the most striking characteristics of the present time in England that nothing is concealed. Matters of the most special and of the most delicate nature find their way into periodical literature, and the results of their publication are not to be calculated; for the half-knowledge thus widely disseminated leads not unfrequently to vague fears and utter confusion as to what should be believed. One instance of this is found in the dread of syphilitic inoculation through the lymph in vaccination, which is now so common, and which took its origin in the publication of a few isolated and very exceptional cases. Another and far wider source of distrust in vaccine is the not unfrequent occurrence of cases which to the minds of those not belonging to the profession must naturally bear conclusive evidence of the justice of their fears. When an erysipelatous condition of the arm follows immediately on the introduction of vaccine lymph in revaccination—when a child is vaccinated in apparent health, and immediately throws out a rash which lasts for a considerable period—it is not easy to convince the sufferer from an inflamed arm that he was out of health at the time, or the parent that her child would probably have developed a rash at the first constitutional disturbance (at teething, for instance), if vaccination had not intervened. The *post hoc ergo*

* *Report of the Board of Health New York, 1871, p. 108; Report of the Board of Health Philadelphia, 1872, p. 89.*

propter hoc argument is not easily shaken, but it would lose much of its force if the lymph employed were of undoubted purity. In the Foundling Hospital at St. Petersburg I found the same rashes, the same glandular swellings, follow the introduction of calf lymph which could boast a pedigree untainted by any human source. Originally introduced from the cow, the lymph has been passed from calf to calf with the most perfect success for a period of nearly six years, and is now used side by side with human lymph for the vaccination of all who present themselves at the institution.

That syphilis *has* been transmitted in vaccination seems to admit of no doubt, but it is equally undoubted that the cases are few; and it is well to remember that constitutional syphilis, when it appears in the infant, is developed very shortly after the vaccination period, *i.e.* within three months of birth.* Dr. Ricci of Milan found that hereditary syphilis showed itself before three months in 48 out of 53 cases in which it was present; Dr. Badnar of Vienna observed it before three months in 108 out of 118 cases; and the statistics of the Foundling at St. Petersburg, kindly furnished me by Dr. Frobélius the present director, show that 85 per cent of those who exhibit signs of syphilis show them within three months of birth, 15·5 per cent within three weeks, and 53·2 per cent between the age of three weeks and two months. It might be well, therefore, to delay vaccination in cases of suspected syphilis until after three months; and in densely-populated neighbourhoods, where parents are unknown, the facts here enumerated may be usefully remembered in the taking of lymph for future employment.

I would submit, however, that the true solution of many of the doubts and difficulties which surround vaccination will be found in the supply of lymph which shall command the confidence of the people.

* See *Twelfth Report of the Medical Officer of the Privy Council*, 1869. Mr. Simon says: 'I can vouch from personal observation, that a simple surgical cut in a child having latent in it the taint of hereditary syphilis may proceed by ulceration to assume the ordinary characters and require the specific treatment of a syphilitic sore; presumably the same thing might happen at the vaccination punctures of a child having latent constitutional syphilis.' p. 89.

In the *Report of the Medical Officer of the Privy Council for 1869* there appears a Report drawn up by Dr. Seaton on 'Animal Vaccination.' His observations extended to Paris, Brussels, Amsterdam, and Rotterdam; and the conclusions he comes to are unfavourable to the practice. If Dr. Seaton had visited St. Petersburg, I believe his opinion would have been materially modified, perhaps reversed.

The objections raised by Dr. Seaton are briefly these:

1. That apparently even able and painstaking operators may find it impossible to transmit successive vaccination from calf to calf without very frequent recurrence of failures and interruptions.

2. That the transference of infection from the calf to the human subject, even under the most favourable circumstances—i.e. by experienced operators, and with lancet direct from calf to arm—has in it such risks of failure that, for instance, at Rotterdam the proportion of unsuccessful was nearly twenty times as great as the ordinary arm-to-arm vaccinations.

3. That the calf-lymph, as compared with ordinary lymph, is peculiarly apt to spoil with keeping, and in the form of tube-preserved lymph can so little be relied upon, that the Rotterdam establishment in distributing supplies of lymph, now uses only lymph from the human subject.*

As regards the first difficulty, of transmitting from calf to calf without interruption, it will be a sufficient reply to state that it has been overcome in St. Petersburg, and that the lymph has been transmitted, as I was informed, from calf to calf for the last five years. It also appears from a Report of Dr. Anunta Chandeoba, that in India, when animal vaccine was introduced on points from England, two failures only occurred out of 130 heifers inoculated.† The difficulty of transmission cannot therefore be insuperable.

The second objection, that vaccination with calf-lymph is more liable to failure even in experienced hands than

* *Twelfth Report of the Medical Officer of the Privy Council, 1869, p. 38.*

† *Lancet, July 26th, 1873.*

with human lymph, is scarcely more cogent than the first.

Dr. Marson asserts that a first-rate vaccinator with first-rate lymph should not fail above once in 150 times; but the standard is certainly not a low one.

In New York the successful primary vaccinations with human lymph are set at 90 per cent.*

Now Dr. Blanc, who, it will be remembered, started a calf-stable in London, and afterwards, in 1869, introduced animal vaccination into India, gives a table of 7324 successful primary operations with calf-lymph out of 8200, or about 90 per cent;† and in St. Petersburg, by taking the lymph with great care on the fifth and sixth days of the eruption, the failures with calf-lymph have now been reduced from 10 per cent to 2 per cent;‡ a sufficiently encouraging approach to Dr. Marson's standard.

A more serious difficulty is found in the distribution of calf-lymph; for lymph which cannot be widely distributed loses more than half its value. Dr. Blanc's experience certainly was to the effect that it would not carry in tubes or on glasses, although perfectly active when used on the spot. Even in Russia it is acknowledged to be more difficult to carry and preserve than human lymph, possibly from the admixture of extraneous matters when the vesicle is forcibly compressed, as it must be, so early as the fourth or fifth day, in order to procure any appreciable supply of lymph. I may mention, however, that calf-lymph which I brought over myself from St. Petersburg in tubes with no special care, succeeded in the hands of a public vaccinator, and produced well-developed vesicles.§

It is difficult to suppress the feeling, therefore, that the question of introducing calf-lymph even to a limited extent in England has been too readily dismissed: what is possible in St. Petersburg can scarcely be considered im-

* *Report of the Board of Health New York, 1871, p. 56.*

† *Lancet*, loc. cit.

‡ *Frobelius*, loc. cit.

§ In a recent number of the *Gazette Hebdomadaire* for May 8th we are told that Dr. Warlomont performed 500 vaccinations with heifer-lymph preserved on ivory points during the years 1870-71, and obtained successful results in 479, or 96 per cent; he also did 5425 revaccinations with good results in 3419 cases, or 62 per cent.

practicable in England; and if there are difficulties still to be overcome, it would seem only fitting that the countrymen of Jenner should work them out. The advantages of a government lymph-supply, which should command public confidence, and at the same time be capable, within a very short time, of indefinite multiplication, can scarcely be over-rated. The chief obstacles to a more extended vaccination pointed out by Drs. Seaton and Buchanan* would be done away, if lymph from a pure and uncontaminated source could be freely circulated among the people.

But a still greater advantage would follow from the rapid production which is one of the chief features of calf-vaccine.

The difficulties of supplying lymph from central dépôts in anything like sufficient quantity to meet the occasional demands for revaccination have more than once been dwelt upon in the Reports of the Privy Council; and in the last New-York Report we find animal lymph actually suggested as a means of meeting the excessive demand, and the State is strongly urged to establish a public institution under the charge of the Health Department for its cultivation.† Dr. Blanc estimated that 500 persons could be vaccinated from a single heifer, or ten heifers from the same source; but this is certainly understated, for Dr. Frobilius‡ mentions having made 100 insertions, all successful, from five vesicles, and it is not uncommon to find from 60 to 120 vesicles on a single heifer.

It does not seem unreasonable, then, that the Government should take up this question and put it to the test of practical experiment and patient observation, instead of dismissing it offhand on the ground of failure elsewhere. Success has been so nearly reached at the St. Petersburg Foundling, that its final achievement scarcely admits of a doubt; and if England now borrows anything from a Russian source, it must be remembered that she once gave inoculation at the hands of Dr. (afterwards Baron) Dimsdale

* *Sixth Report of the Medical Officer of the Privy Council*, 1863, p. 114.

† *Report of the Board of Health New York*, 1871, p. 314.

‡ *Loc. cit.*

to the great Catherine and her son, and subsequently the vaccine lymph, in acknowledgment of which Jenner received from the Empress Maria a massive brilliant ring.*

Calf-vaccine was started at the Foundling in St. Petersburg from true cowpock in the year 1868, and has been continued side by side with Jennerian lymph up to the present time. A heifer calf from two to four months old is taken every fourth day, the abdomen is cleanly shaved on a table specially adapted for the operation, and from 60 to 120 insertions are made in regular rows of from ten to fifteen pricks apiece. A light bandage is then applied, and the calf rejoins its companions in a clean and well-ventilated stable. On the fourth day the vesicles are ready; the lymph, however, is better on the fifth day, and none should be taken after the seventh. It is pressed from the vesicle by means of a small tenaculum; and I was assured that the effects were equally satisfactory whether the vaccination was performed in the summer or the winter seasons. In a large institution like the Foundling, with a resident infant population of 800, and at times as many as 200 vaccinations of a morning, observations are drawn from a very large experience, and deserve more than ordinary attention. I hope, therefore, that Dr. Frobilius will shortly be induced to favour us with statistics up to

* 'In the year 1768, when smallpox was rife in St. Petersburg, and some even of the court ladies had died of it, Dr. Thomas Dimsdale and his son, of Hertford, were summoned to inoculate Catherine II. and the grand-duke her son. Dr. Dimsdale, naturally nervous at so great a responsibility, wished to consult with the medical authorities of the Russian court; but this was denied him by Catherine, who insisted that the practice was not new, and that Dr. Dimsdale's reputation was a sufficient guarantee of his proficiency. The operation was performed, and the empress retired for a season to one of her country palaces. It did not, however, interfere with her amusements; for she wrote Voltaire: "I have not kept my bed a single instant, and I have received company every day. . . . Count Orloff has put himself under the hands of our Englishman, and the next day after the operation went to the hunt in a very deep fall of snow."

'For his services Dr. Dimsdale was created Baron of the Russian Empire, actual Counsellor of State, and Physician to her Imperial Majesty; he also received a pension of 500*l.* per annum, to be paid in England, besides 10,000*l.* sterling on the spot, with miniatures of the empress and the grand-duke. To his son was granted the same title of Baron and a superb gold snuffbox set in brilliants.

'At the public thanksgiving in honour of Catherine's recovery, the Pope remarked, "that the Russians had borrowed assistance from Britain, that island famed for wisdom, bravery, and virtue."'*Life of Catherine II. of Russia.*

a recent date. They cannot fail to be deeply interesting, and they may possibly lead to practical improvements in our vaccination system.

Compulsory laws are powerless if doubt and prejudice are marshalled against them, and there can be no doubt that distrust is spreading in England, fostered on the one hand by mischief-makers, and on the other hand by failures due to carelessness and inefficient performance of vaccination.

We have strayed far from the precepts of Jenner, and need to retrace our steps if we are to succeed as he succeeded. Certificates of efficiency in vaccinating should be required of every medical man on his being licensed to practise his profession; the importance—and not, as now, the insignificance—of the work would thus be impressed on all at the outset of their career, definite and settled views would be enforced, and something like uniformity of practice might be attained. If it were possible, in addition, to guarantee a lymph-supply free from all human contamination, public confidence would be restored, and the law would be more willingly obeyed.

Turning for a moment to the pressure brought to bear upon the people, it seems highly desirable that some standard of vaccination (as suggested by Drs. Seaton and Buchanan)* should be required of every child on entering the public and national schools of the country; and that the duties of vaccination inspector should be in the hands of the registrar of births and deaths, who is alone cognisant officially with the data on which they are based.

It is an anomaly worthy of English legislators that the care of vaccination, one of the first requisites for the prevention of disease, should be intrusted, not, as might be supposed, to the sanitary authority in towns, not to the medical officer of health, but to vaccination inspectors without special qualifications and without the power even to issue a summons except by permission† of the guardians of the poor, many of whom are too ignorant or too prejudiced to see the utility of the law which they have been appointed to enforce.

* *Privy Council Report*, 1863, p. 120.

† The law on this particular point has been altered since the above was in print.

II. ON THE EFFECT PRODUCED ON THE CAPILLARY CIRCULATION BY THE INJECTION OF PUTRID FLUIDS INTO THE LYMPHATIC SYSTEM OF AMPHIBIA.

By JOHN CAVAFY, M.D., LOND.

IN the *Centralblatt für die Med. Wissenschaften*, 1872, page 769, Greveler and Hüter have published a preliminary communication on the general pathological changes in the circulation of the frog after infection with fluids containing bacteria.

The fluids employed by them for this purpose were normal blood and pus, allowed to putrefy until an enormous number of energetically-moving bacteria were developed in them. From one to two cubic centimetres of the fluid (according to the size of the frog) were then injected subcutaneously into the thigh, or a dorsal lymph-sac. After from four to eight hours (sometimes twenty-four hours), the infected animals were curarised, and the mesenteric circulation observed by Cohnheim's method.

The following changes were noted :

1. Adhesion of colourless corpuscles in great numbers to the walls of the blood-vessels, chiefly small veins and capillaries.

2. Even a few hours after infection numerous capillaries were shut off from the circulation, their number increasing with time ; so that in twenty-four hours half the capillaries were thus shut off.

3. This shutting-off of the capillaries from the circulation was found to be caused very commonly by one or two colourless corpuscles adhering to the point at which the capillary was given off.

4. Sometimes the blood-stream was seen to pass by an empty capillary without any colourless corpuscle being

observed to block it; it was then seen that a single large bacterium or several bacteria were adherent to the wall of the vessel, or to the point of origin of the capillary, which equally prevented the blood from passing, although the capillary was not completely blocked by them.

The phenomena above described are stated to have been also observed in the tongue and in the web.

Similar statements are made concerning the small arteries and veins. Greveler and Hüter finally conclude that these appearances cannot be due to general slowing of the circulation from commencing paralysis of the heart, and that a local cause for them must be assigned, because vessels are found in close contiguity with those in which the circulation is stopped in which it still goes on normally. Further, that the bacteria are the efficient cause, by giving rise to the adhesion of colourless corpuscles to the walls of the vessels. They state that the adherent corpuscles contained many large and dark granules, and that by the action of caustic, potash, and ammonia many similar granules (bacteria) were shown adherent to the vessels, while the granules of protoplasm disappeared.

In the same periodical (1873, pp. 65 and 81), Hüter has a paper in which he confirms the above observations as regards the lung of the frog, and also promulgates a new theory of fever based upon his experiments.

With this I am not at present concerned, but only with the observations so far as they relate to the mesentery and the web.

In the summer of 1873 I made a series of experiments in the pathological laboratory of the Brown Institution, under the direction of Dr. Klein (to whom my best thanks are due for his kind advice and assistance), with the view of confirming, or otherwise, the observations of Greveler and Hüter.

Their experiments were made on the common frog (*Rana temporaria*); but on attempting to repeat them, I soon found that this species was not at all well adapted to the purpose, for even in the case of *uninfected* frogs there are many difficulties in the way of making accurate observations on the mesenteric circulation.

I found, for instance, that in many cases there was a spontaneous stoppage of the capillary circulation in smaller and larger portions of the mesentery for varying periods; and in others, already at the commencement of the observation, there were marked changes as regards the adherence of colourless corpuscles to the walls of the small veins and capillaries. In other cases again, without any changes being noticed, the movement of the heart became gradually slower, and finally stopped. As in all the above cases the animals were treated in precisely the same way, *i.e.* simply curarised and not infected, it is plain that the description given by Greveler and Hüter of the changes brought about by infection must be received with some suspicion by any one who has made extended observations on *R. temporaria*. My object, therefore, was to find some animal which did not present the above difficulties of observation.

Practically there are three species of amphibia on which observations of the above nature may be made: the common frog (*Rana temporaria*), the edible frog (*R. esculenta*), and the common toad (*Bufo vulgaris*). The first of these was excluded for the reasons above given; *R. esculenta* could not be procured; so that the toad was perforce chosen. But this was certainly no matter for regret, because this animal is peculiarly fitted for observations on the mesentery, for the following reasons:

1. The operation for exposure is much easier than in frogs, as there is hardly any bleeding, owing to the lesser vascularity of the skin.

2. The effect of *dragging* the mesentery (*vide infra*) during exposure is largely neutralised by the fact that its larger blood-vessels and many capillaries are invaginated in large lymphatic sacs; in the frog this is not the case to anything approaching the same extent, and consequently the least tension in spreading out the mesentery often brings about such marked and extensive changes in the circulation that its normal relations cannot be restored.

My experiments were made according to Cohnheim's method. After curarising (toads require three or four times as much curare as frogs), the abdominal cavity is

carefully opened along the right side, the animal being laid on its back, and the intestine, commencing from the rectum, is gently drawn with the mesentery on to a cork ring cemented to a glass plate, into which is fitted a thick glass circle half an inch in diameter. If the toad is well curarised, the intestine becomes completely paralysed soon after exposure, and the mesentery does not shrink. During observation it should be frequently moistened with $\frac{1}{2}$ or $\frac{3}{4}$ per cent solution of common salt. The most appropriate powers to use are oc. 3, obj. 4 or 5 Hartnack, with which my observations were made, except when otherwise stated.

In this manner the mesenteric circulation was observed in seventeen toads, which were infected by the subcutaneous injection of various putrid fluids containing active bacteria. These fluids were injected at different times during the observation, and in varying amounts, which will be found described in the detailed account of my experiments, which I now give.

Experiment 1. May 19. A toad was curarised. At 3.45 mesentery examined: circulation normal; mesentery replaced, and wound sewn up. *May 22.* Again curarised. At 2.30 there was good capillary circulation, with only slight inflammation. At 3.15 injected under skin of abdomen with five parts of a Pravaz syringe* of putrid pus, containing many large filamentous bacteria, and enormous numbers of actively-moving dumb-bell and granule forms. Capillary circulation observed $1\frac{1}{2}$ hours; remained still active and normal, with slight occasional fluctuations. *May 26.* Died.

Experiment 2. May 19. A toad was curarised. At 4.15 mesentery examined: circulation normal; replaced as above. *May 23.* Again curarised. At 3.10 mesentery showed very active circulation in some parts; in others circulation rather slow in capillaries, owing to inflammation. At 3.15 one syringe of above putrid pus injected under skin of abdomen; no change in capillary circulation in $1\frac{1}{2}$ hours; replaced. *May 24.* Again curarised, and mesentery examined at 12; absolutely no stasis. *May 26.* Slow circulation in tongue. *May 27.* Found dead this morning.

Autopsy. Urinary bladder distended with clear fluid, in which several opaque yellowish masses floated. One of these, examined with obj. 8 Hartnack, was found to consist of bacteria-colonies. A drop of blood extravasated into peritoneum showed bacteria in plasma, and

* The capacity of the syringe used was 1.6 cubic centimètres divided into twelve parts.

many in interior of colourless corpuscles. A drop of blood from the heart (which still pulsated) showed also a few bacteria in plasma and colourless corpuscles. A portion of the kidney washed in salt solution and teased showed enormous numbers of granular and dumb-bell forms, and a few filamentous bacteria.

Experiment 3. May 27. A small toad injected with one syringe putrid pus. *May 29.* Curarised; mesentery showed active circulation both in capillaries and larger vessels; no accumulation of colourless corpuscles on walls of veins; replaced. *May 30.* Died of hæmorrhage into abdominal cavity; source not discovered.

Experiment 4. May 29. A toad injected with one syringe putrid rabbit's blood crowded with bacteria. *May 30.* Curarised; abdominal cavity full of sanguineous fluid; circulation distinct in mesentery, but slow, many veins containing very few corpuscles; in many places masses of colourless corpuscles forming plugs. Died same day.

Experiment 5. May 30. A toad injected at 8.50 with one syringe above putrid blood, mixed with an equal quantity of putrid defibrinated donkey's blood. Dying in afternoon. Complete stasis in large vessels of mesentery; abdominal cavity full of sanguineous fluid. A drop of blood from the heart showed mammalian corpuscles and a few bacteria; a few bacteria were also found in the kidney. Mesentery cut out, and examined with obj. 8 Hartnack, showed accumulations of mammalian corpuscles and bacteria in the lymphatic sinuses.

Experiment 6. June 3. A toad curarised, and afterwards injected with one syringe putrid blood; mesentery examined at 2.30 (in making the incision for exposure a small quantity of the putrid blood escaped). 3.45, circulation much slower in capillaries, some of which were partially empty; in others stasis; circulation also much slower in arteries and veins. 4.30, complete stasis and oscillating motion in large vessels; slow circulation in a few capillaries, but majority empty or with stasis; replaced. *June 4.* Dying at noon. Veins of mesentery distended with blood; very feeble circulation in some veins and capillaries, which latter were partly empty, and partly contained a few corpuscles. There was no considerable number of adherent colourless corpuscles either in the larger or the smaller veins.

Experiment 7. June 5. A toad injected at 2.30 with five parts putrid blood; curarised at 3. At 4 (1½ hours after infection) mesentery examined; very good circulation. In some capillary veins there was adhesion of isolated and grouped colourless corpuscles to the walls. At 4.15 a large vein was observed whose wall was perfectly covered with adherent colourless corpuscles. The number of these diminished when the mesentery was relaxed, and increased when it was again made tense; mesentery replaced for half an hour. At 5 the same large vein showed only very few adherent colourless corpuscles; replaced. At 6 (3½ hours after infection) circulation much slower in veins, which were all distended with blood; slower also in arteries; replaced. At 7.5 no change. *June 6.* 1 A.M. (10½ hours after infection), large vessels distended with blood, but circulation nearly of normal velocity. 3 P.M. (24½ hours after infection), dying. Intestine much congested; mesenteric vessels crammed with corpuscles; only traces of circulation; much

exudation; many lymphatic sinuses filled with colourless and a few coloured corpuscles.

Experiment 8. June 5. A toad injected at 2.30 with three parts putrid blood; curarised at 3. At 3.30 (1 hour after infection) mesentery examined. Slight bleeding during operation. Intestine and mesentery very hyperæmic; circulation very rapid and complete; some lymphatic sinuses filled with colourless corpuscles; replaced. At 4.30 (2 hours) there had been much bleeding from veins of abdominal wall. A few capillary veins showed adherent colourless corpuscles, but circulation in general unaltered; replaced. At 5.30 (3 hours after infection) large numbers of adherent and emigrating colourless and some coloured corpuscles in small veins; great number of mammalian corpuscles in small veins; stasis only in one small vein; replaced. 6.50 (4 hours 20 minutes after infection), circulation a little slower in veins; stasis in several efferent and capillary veins; inflammation more intense; accumulation of colourless corpuscles in larger and smaller veins, and emigration from the latter; circulation slower in capillaries, but distinct; replaced. *June 6.* 12.45 A.M. (10½ hours after infection), intestine very hyperæmic, and vessels of mesentery much distended, but circulation very rapid and normal in capillaries; sparing adhesion of colourless corpuscles, of which many were in the tissue of the mesentery; nearly recovered from curare. 3.15 P.M. again curarised. At 4 (25½ hours after infection) intestine very red; mesenteric circulation good, but vessels much distended with blood; unaltered circulation in capillaries; abundant emigration. Died same evening.

Experiment 9. June 6. A toad injected with five parts of a syringe putrid blood at 1 o'clock; curarised at 2.30. At 4.30 normal circulation in mesentery. *June 7.* 8 A.M. dying. Blood-vessels relatively empty; very few signs of inflammation in mesentery; intestine pale; other internal organs congested.

Experiment 10. June 6. A toad injected with three parts of a syringe putrid blood at 1; curarised 2.30. At 4.50 very bad circulation in all mesenteric vessels, arteries, capillaries, and veins. *June 7.* 8.30 A.M. dead; blood-vessels empty.

Experiment 11. June 10. A toad injected with three parts putrid blood at 12.30; curarised at 1.45; mesentery examined at 2.15; slow circulation in arteries and large veins; capillaries mostly empty; stasis in a few; replaced. 2.35, again examined; same state, with oscillation in many vessels; replaced. 2.50, again examined; stasis in many large veins; oscillation in arteries; some small veins with good circulation, but rather few corpuscles; a few small veins only with a small quantity of adherent colourless corpuscles; no circulation at all in capillaries; replaced. 4.45, again examined; no change; replaced. 5.40, again examined; mesentery very anæmic, with extremely sluggish circulation here and there, but mostly stasis. (Not observed further.)

Experiment 12. June 10. A toad injected with two parts of a syringe putrid blood at 12.30; curarised at 1.45; mesentery examined at 3.15; circulation very rapid; veins much distended with blood; replaced. 4.50, again examined; circulation still rapid, but some adhe-

sion of colourless corpuscles, especially in capillary veins; intestine congested; replaced. 5.50, again examined; circulation distinctly slower; considerable accumulation of colourless corpuscles in some capillary veins; many colourless and coloured corpuscles in tissue; whole intestine and mesentery hyperæmic. (Not observed further.)

Experiment 13. June 17. A toad curarised at 12.15. At 2.45 injected with three parts of a syringe serum of putrid pus crammed with bacteria, but no corpuscles. At 3.30 mesentery examined; very slow circulation; accumulation of colourless corpuscles in many small veins; replaced. At 4 again examined; no change; replaced. At 5 again examined; extremely weak circulation; great accumulation of colourless corpuscles in all veins and in some small arteries. *June 18.* Died this morning.

Experiment 14. June 27. A toad curarised at 9 A.M. At 12 injected with five parts of a syringe putrid pus serum. At 1.15 mesentery examined; circulation moderately active in large vessels and in some capillaries; temporary stasis in some capillary veins. Two districts were observed in which the capillaries were entirely shut off from the circulation, and contained only a very few stationary corpuscles (the mesentery was much folded at those parts). In a few large veins there was accumulation and adhesion of colourless corpuscles; replaced. At 2.15 again examined; intestine very hyperæmic in parts previously exposed; circulation about as above; adhesion and emigration in some capillaries, in which the circulation was very slow; adhesion in many veins; beginning to recover from curare; replaced. At 3 again examined. General phenomena of inflammation more marked; great accumulation in nearly all veins; rich emigration; great distension of all veins; slow circulation everywhere; replaced. At 4 again examined; same phenomena as above, but increased. (Not observed further.)

Experiment 15. July 3. A toad injected at 9.15 A.M. with ten parts of a syringe putrid pus serum; curarised at 11.45. At 3 P.M. mesentery examined; nearly complete stasis everywhere; replaced. At 4 again examined; stasis as above, but very slow circulation in some places; accumulation in many large and small veins, and in several veins wedge-shaped plugs, chiefly, but not entirely, of colourless corpuscles; great hyperæmia of exposed parts of intestine. *July 4.* Died.

Experiment 16. July 7. A toad curarised at 11.30; *not infected.* At 2.15 mesentery examined; slow circulation, and adhesion of colourless corpuscles; replaced. At 3 again examined; stasis in many capillaries; very slow circulation in others; plentiful accumulation of colourless corpuscles in veins; replaced. At 4.50 again examined; circulation slower; veins much distended; great adhesion of colourless corpuscles in all veins; many capillary veins shut off from circulation by a plug of coloured corpuscles. *July 8.* Died.

Experiment 17. July 15. A strong toad injected at 9.10 A.M. with two syringes putrid pus; curarised at 2. At 4.15 mesentery examined (there was much bleeding from the skin during operation for exposure); good and active circulation in large vessels; the capillaries were very few; accumulation and adhesion in many veins, but by no means so general as in other less- or non-infected animals. (Not observed further.)

On reviewing the above experiments, it may be seen that in many of them results were obtained very similar to those noted by Greveler and Hüter, viz. adherence of colourless corpuscles to the walls of small veins, and shutting-off of capillaries from the circulation, in some cases by distinct plugs formed of agglutinated colourless corpuscles, and in others without any visible obstruction. But it is also plain that these appearances depend on a variety of causes, and that we are not justified in assuming in every case the special local action attributed to the infecting fluid by Greveler and Hüter. In some cases (Exp. 16) precisely the same appearances were to be seen when there had been no infection at all, but simply exposure of the mesentery after curarising; while in others, although the animal was undoubtedly completely infected by the putrid fluid, no change in the circulation could be noticed after many hours. This is notably the case in Exp. 2, in which no changes were observed in the capillary circulation so much as twenty-one hours after injection of the putrid fluid; although after death bacteria were found in the blood, some in the substance of the colourless corpuscles, in the kidney, and masses of them in the urine. The presence of bacteria in the kidney and urine is especially valuable, as proving not only complete infection of the animal, but also an attempt at elimination of the morbid material. This has also been observed by Heiberg (*Die puerperalen und pyämischen Processe*, Leipzig, 1873, pp. 40-41) in human patients with pyæmia. He found many of the uriniferous tubules plugged with a granular material, proved not to be of a fatty nature by the granules becoming even more distinct after treatment with alcohol and ether, and shown to be bacteria by high powers. Again, although the various phenomena may be observed, and even strongly marked, a temporary recovery will often take place if the mesentery be returned to the abdominal cavity, the wound sewn up, and the animal set aside for a time (Exps. 7 and 8 especially, and others, *passim*). This would not be the case if the alterations in the circulation were due to any local action of the infecting fluid. We should then expect to find the effect increased by a longer

duration of the contact of the foreign material with the walls of the vessels; but this is precisely what we do not find. I am unable to see in what particular the phenomena I have observed differ from those of mesenteric inflammation with which the researches of Cohnheim and others have made us familiar. The effect of infection with relatively small quantities of putrid animal fluids appears to be similar in every respect to the inflammation produced by simple exposure, with the exception that the various phenomena—dilatation of vessels, adhesion and emigration of colourless, and sometimes of coloured, corpuscles—follow each other more rapidly (Exps. 12, 13, 14). On this point I find myself in entire agreement with Zahn (*Zur Lehre von der Entzündung und Eiterung*, Heidelberg, 1872), who experimented on frogs by the application of fluids containing the *Microsporon septicum* of Klebs (the granular and dumb-bell forms of bacteria—micrococcus of Cohn), either directly to the mesentery after exposure, or by injection into the abdominal cavity. He found that the phenomena of inflammation occurred much more rapidly in infected animals than in others not so treated. If large quantities of the putrid fluids be used, or if the animal operated upon be specially susceptible (Exps. 4, 5, 6, 9, 10, 11), the stasis and plugging of capillaries come on immediately, without any adhesion or emigration of corpuscles; that is to say, we get a paralysis of the heart, with great slowing, and finally complete stoppage of the circulation, which is either unaccompanied by inflammation at all, or is so only in a very slight degree.

As experiments on the mesentery must be always accompanied by an inflammation due to exposure, it is a matter of some difficulty to decide how far phenomena observed in the circulation of this membrane are due to this cause, and in what measure they are to be ascribed to infection. This objection does not apply to the web of the frog (*Rana temporaria*), on which I accordingly made a few observations, which I now append.

Experiment 1. July 3. A large frog was injected at 9.15 A.M. with ten parts of a syringe putrid pus serum; curarised at 11.45; web examined at 2.15; accumulation of colourless corpuscles was noticed in

many capillaries; in others the circulation was frequently slow for short periods; and there was a tendency to adhesion of colourless corpuscles in nearly all capillaries and capillary veins. At 3.35 the same web was again examined. In most places circulation was very active; in some, however, there was also circulation in large veins. There was stasis in a few capillaries, with accumulation of colourless corpuscles, chiefly in those belonging to the district of slow venous circulation. *July 4. Died.*

Experiment 2. July 8. A frog curarised at 3.35; not infected. At 3.50 web examined; showed even more slowing of circulation and accumulation of colourless corpuscles than No. 1. *July 4. Died.*

Experiment 3. July 7. A frog injected at 8.15 with two syringes putrid pus serum; curarised at 2.5. At 2.30 web examined. Slow circulation in almost all capillaries, and great adhesion, chiefly of coloured corpuscles; in some places diapedesis; a few patches of hæmorrhage. These appearances were chiefly in web to left of middle toe in right foot, but also in other webs of same and left foot not quite so pronounced. 3.45, *right web* in same state. 4.30, *left web*: adhesion and diapedesis of coloured corpuscles, but much less. *Right web*: slower circulation; diminution of adherent coloured corpuscles; relative increase of adherent colourless corpuscles. 5.15, *right web*: similar state, but still less marked. *July 8, both webs*: nearly recovered; a few places only still show adhesion and diapedesis of coloured and colourless corpuscles. *July 10.* Again curarised at 2 (no fresh infection). 2.35, *right web*: circulation active, but still adhesion of coloured and colourless corpuscles in a few places. 3.30, no change. *July 11.* 3.15, again curarised (no fresh infection). *Left web*: remarkable for great number of hæmorrhagic spots; circulation slower in a few places, with stasis in a few capillaries; slight adhesion of coloured and colourless corpuscles at points of slow circulation. *July 14.* Again curarised (no fresh infection); still adherent coloured corpuscles here and there, with diapedesis in isolated cases. (Not observed further.)

Experiment 4. July 10. A frog injected at 9 with 1½ syringe of putrid pus serum; curarised at 2. At 2.15, *right web*: only very few capillaries and capillary veins with adhesion and accumulation of coloured and colourless corpuscles. *Left web*: one large vein showed great adhesion of coloured and colourless corpuscles; a few capillaries also with adhesion; circulation much slower than in right. 3.15, *right web*: many capillaries and veins with adhesion of colourless corpuscles; enormous number of migratory cells immediately beneath epithelium. *Left web*: adhesion in several places, but process not so intense as in right. *July 11 (afternoon).* Circulation normal in both webs. *July 14. Died.*

Experiment 5. July 11. A frog injected at 9.15 with three syringes of putrid pus; curarised at 2 P.M. (numerous hæmorrhagic specks about region of abductors of thighs); good circulation in both webs; no adhesion. 3 P.M. almost general stasis in both webs; vessels much distended by blood. 4.10, *left web*: very little circulation. *Right web*: better; sluggish circulation over greater part. 5, again general stasis in both webs. *July 12 (11 A.M.).* Circulation normal in both webs. *July 14.* Unhealthy, with patches of ulceration, and much congestion

of skin; again curarised (no fresh infection). 3.30, absolute stasis in both webs; died.

Experiment 6. July 15. A frog injected at 9 with three syringes putrid pus. At 10 there was complete paraplegia; not curarised. At 12 rather slow, but otherwise normal, circulation in both webs. 2.15, *right web*: very slow circulation, with complete stasis in many parts; *no adhesion* of colourless corpuscles; heart barely beating; died.

These experiments, although few in number, tend, so far as they go, to confirm the conclusions I have drawn from my observations on the mesentery. The phenomena, indeed, closely resemble each other in both cases. We find, again, appearances of inflammation, from which a temporary (Exps. 4, 5) or complete (Exp. 3) recovery may take place. Further, we are again met by the fact that similar appearances may be shown by animals which have not been infected at all (Exp. 2); and the striking effect of large doses is well shown in Exp. 6, in which the paraplegia was at first thought to be due to the syringe not having been properly cleaned after being used for curare. This, however, on inquiry, was found not to be the case, as it had been thoroughly washed out with weak carbolic acid, and afterwards with distilled water. Every precaution was taken to insure favourable physiological conditions. The frogs were not long under observation at a time, and during the intervals were frequently well washed with a stream of cold water. They were always wrapped up in moist blotting-paper, which was carefully kept constantly wetted; but in one case at least (Exp. 5) the animal was unhealthy to begin with. In the case of the non-infected frog this was probably also the case; but here we must, in addition, admit the effect produced by dragging or stretching upon the walls of minute blood-vessels. Zahn has shown, with regard to the mesentery of *Rana esculenta* (*Centralblatt*, 1872, p. 129), that an injury to the walls of the vessels may be thus produced, leading to a disturbance of the normal condition of the parts, possibly even an alteration of texture, which is followed by plentiful accumulation of colourless corpuscles, and by the formation of thrombi consisting of them. That this is often the case as regards the mesentery my experiments show clearly

enough, and I think we must be guarded in refusing to admit the same process as taking place in the web.

The results of my observations may be recapitulated in the following conclusions:

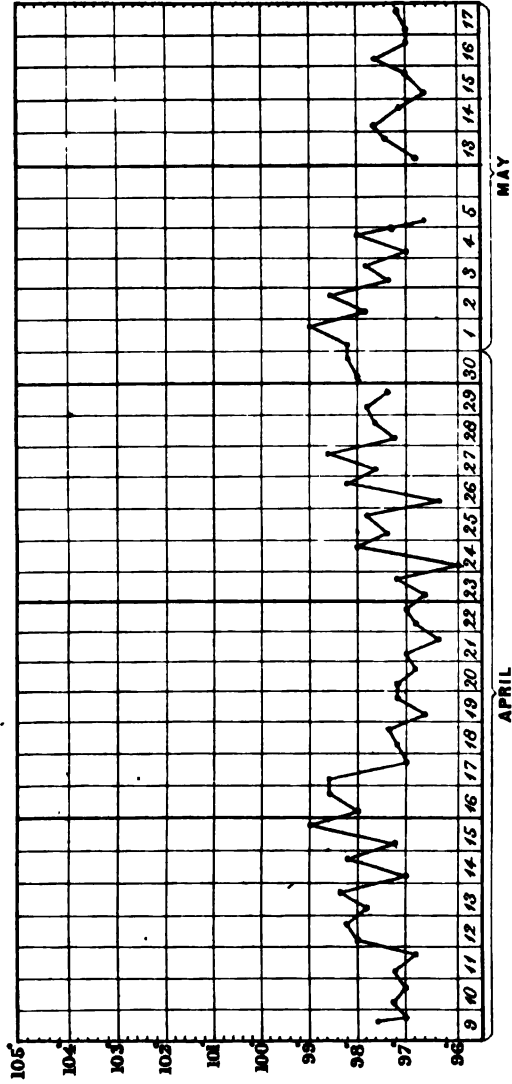
1. The injection of putrid animal fluids in relatively small quantities into the lymphatic system of amphibia is followed by inflammation, which is not to be distinguished from inflammation produced in other ways, except by the fact that it supervenes more rapidly.

2. Large doses act as a direct poison to the nervous system, causing paralysis of the heart, with consequent general circulatory stasis.

3. The accumulation of colourless corpuscles and the formation of thrombi cannot be attributed to any local action exercised by bacteria on the walls of the blood-vessels, or on the protoplasm of the colourless corpuscles, but must be ascribed (a) to inflammation, (b) to paralysis of the circulatory centre, (c) to alteration of the normal condition of the walls of the vessels produced by dragging, or (d) to a varying combination of these causes.



D^r FENWICK'S CASE OF K.P. ÆT 30. See p. 29.



III. THREE CASES OF CEREBRAL DISEASE; WITH A TABLE OF CASES OF TUBERCULAR MENINGITIS.

By J. C. J. FENWICK, M.D. CANTAB.

WHEN asked to supply a short paper for the *Hospital Reports*, it occurred to me that the following cases presented sufficient interest to entitle them to publication in this manner. One of the cases recovered, and two died; on one of which we unfortunately were unable to obtain a post-mortem examination. The other case which died, and of which an account of the post-mortem examination is given, was one of tubercular meningitis; and as an appendix to this case I have drawn up a table and short analysis of the post-mortem examinations of cases of tubercular meningitis which have taken place at St. George's Hospital since 1860, having reference to the age of the patients and the organs affected with tubercle.

In a disease so much more prevalent in childhood than in adult life, the statistics with regard to age in a general hospital like St. George's are not really of much practical value, owing to the number of institutions which now exist for the treatment of children's diseases.

CASE I. K. P., a housemaid, æt. 30, was admitted into Holland Ward April 9th, 1874, under the care of Dr. Ogle. She said she had seen double for some time, and eight days before admission she was attacked with acute pain in the back of the head and vertex; since when she had vomited several times. She was said to have suffered from profuse sweating and weakness two years and a half previously; but, with that exception, no history of illness of herself or family could be obtained. The catamenia had been absent for two years. On admission, the face was flushed, the pupils rather dilated and not acting well, the conjunctiva of the left eye injected. Temp. in axilla 97.2° ; pulse 57; tongue foul. Bowels said to act regularly. The abdomen was dusky, and there were faint lines resembling *linæ albæ*. The nurse said there was a slight discharge from the vagina. She was quite sensible, and talked quite rationally; she complained much of the pain in her head. She was ordered an ice-bag to her head, and ice to suck. Pot. iod. gr. v.; pot. bicarb. gr. v.; hst. pot. citrat. ʒjss.; 4tis horis. empl. lyttæ nuchæ.

10th. The bowels acted this morning; pain in the head the same. The chest was examined, but nothing abnormal found in it; the urine was also examined, and found to be high-coloured, faintly acid, not albuminous, containing a great quantity of phosphates; sp. grav. 1025. A chart of the temperature is given. 11th. The bowels not having acted this morning, she was given hydrarg. subchlor. gr. iij. stat.: hst. sennæ post horas iij. On the 13th, the bowels being still rather confined, she was ordered a senna draught again. She was also ordered six ounces of wine. Liq. epispastic nuchæ. 14th. She slept well during yesterday, but was restless at night; has less pain in the head; she squints occasionally, but not always; nurse says sometimes she sees double, and sometimes properly; respiration sighing in character. 15th. An addition of pot. iod. gr. v. was made to her medicine. 17th. Complained of pains in the top of the head last night, but has no pain now; the left pupil is more dilated than the right; no injection of the conjunctiva. Tongue coated and foul; bowels open; p. 56; r. 16. 22d. Vision double; she sees better with the right eye than with the left. No pain in head. Tongue cleaner; bowels open. Sleeps well. 27th. She is now quite free from pain in the head. Tongue is nearly clean, and bowels act every day. She sees double at a distance of about two and a half feet, but not nearer. 30th. Has again a little pain in the head. Tongue clean; bowels open. Sees double. Examination with ophthalmoscope revealed 'slight œdema or effusion about both discs, but chiefly on the right; the right retinal vessels also full; paresis of the external rectus.' May 7th. Feels much better; has now no pain in the head; vision has much improved, but she still sees double sometimes. 9th. Has not had any more pain in the head; does not see double at all now, and can move her eyes freely in every direction, but has a very slight squint; other times quite well. 15th. The squint has entirely disappeared, and sees perfectly; in fact, she is now quite well. 20th. Discharged.

The marks on the abdomen and the slight discharge from the vagina at first seemed rather to point to a syphilitic history; no other evidence, however, of that taint was forthcoming; and as the patient appeared to be a very respectable girl, having been several years in her present situation as housemaid, that theory was rejected. Nor could any definite conclusion be come to with respect to the previous illness two and a half years before admission; the only history that could be got being that she was intensely weak and perspired very profusely; and it is curious that six months after that the catamenia ceased, and have not since returned. The temperature was carefully tried several times by Dr. Ogle himself, its extreme lowness naturally having excited suspicion that the observation had not been accurately made.

CASE II. T. C., æt. 32, railway fireman. He was admitted under Dr. Ogle's care April 10th, 1874, with the following history. He had had a cough for two months, during which time he had spat a little white stuff; had never had hæmoptysis. He had had nocturnal perspirations, and had lost much flesh; had had no diarrhœa. There was no family history of phthisis to be obtained. Five days before admission he was attacked with pain in the head on the right side, chiefly near the vertex, and since that time had felt general malaise. On admission his temperature was 103°; p. 80; tongue coated; bowels open. He had slight cough; the breathing was a little coarse at the right apex, and v. r. a little increased; heart-sounds conducted. Ordered pil. hydrarg. gr. iv.; ext. hyoscy. gr. j. h. n.; hst. sennæ, ʒjss.; sp. ammon. comp. ʒss.; c. m.; cat. sinapis nuchæ. 11th. Throat a little sore; there was a slightly-enlarged gland under the jaw on the right side. Bowels have acted freely. Pain in the head the same. Ordered hst. ammon. citr. efferv. ʒjss. 4tis horis. Ice-bag to the head. 14th. The pain is easier; temperature lower; bowels confined. Pil. cal. c. col. gr. viij. h. n. 16th. Bowels open; tongue coated; pain in the head much easier; temp. nat. During the next two days he appeared to improve, and on the 18th appeared almost well enough to get up. During the morning of the 19th, the nurse, on going to him, found him wandering and becoming comatose, but was able to get his wife's address from him. He gradually became quite insensible, and died the next morning.

Unfortunately no post-mortem examination could be obtained.

This man appeared a few days before his death to be almost convalescent; his temperature had become normal, and he was almost free from the pain in his head; in fact, the only thing to be noticed about him was that his tongue was not clean, his bowels inclined to be costive, and that one of the glands about the jaw was a little enlarged; the very slight cough, unaccompanied by expectoration, which he had when he came in, having apparently disappeared. It is very unfortunate that no post-mortem examination could be obtained. The enlarged gland, however, the history of cough for two months accompanied by slight expectoration, nocturnal sweats and loss of weight, and the suspicious auscultatory sounds at the right apex, seemed rather to point in the direction of tubercle.

In the same ward as the last patient, and almost at the same time, lay another man, whose case presents some features of interest, being a case of tubercular meningitis (or general tuberculosis), complicated with hemiplegia.

CASE III. T. L. This man was an organist. He was 28 years of age. He was admitted into St. George's Hospital April 1st, 1874.

He gave the following history. He had been out-patient for about five months, commencing last November or October, at Brompton Hospital for Diseases of the Chest. About six weeks before admission he found one morning on waking that he was unable to move the limbs on the left side; sensation, according to his account, being unimpaired. The attack lasted only a few minutes, and then he recovered. For a few days these attacks occurred once a day, and then increased in frequency to twice a day. About a fortnight before admission the condition became permanent. Ten days before admission he found pain in the jaws, all over his head, and had difficulty in opening his mouth; and lately he had had difficulty in passing his urine. This pain in the head and jaws was present when he was admitted; he had also complete paralysis of the left arm and leg; the tongue came out a little to the left, and the muscles of the left side of the face did not act so well as those of the right, though there did not appear to be any difference in the eyelids. Sensation present both in the arm and leg. He gave a clear account of himself, and seemed to talk rationally. The tongue was cracked, and coated with a thick yellowish-brown fur; bowels confined. He said he had 'a weakness at the lower part of the bowels.' Heart-sounds clear and loud. The chest was extremely dull under the left clavicle, where the breathing was tubular, and where was pectoriloquy and gurgling; moist sounds also were audible at the right apex. He was ordered 4 gr. calomel, and a senna draught after four hours. The next day he was in much the same condition; he had slept very badly. The bowels had been freely opened by the calomel and senna. The urine was loaded with lithates, but free from albumen. Ordered liq. strychniæ, ℥v.; acid. phosph. dil. ℥xx.; aquæ, ʒj.; s. d. 3rd. Has slept badly, is very thirsty, and perspiring very freely; is coughing a great deal and spitting up a quantity of muco-purulent fluid. The medicine was stopped, and he was ordered some ice to suck, and three ounces of brandy daily. The pain in the head is still very intense. 4th. He has begun to wander a good deal and talk to himself; otherwise, the same as before. 10th. He continues delirious; the cough and spitting are much the same, and the perspiration continues; he puts his hand to his head frequently as if in pain. He continued with the same symptoms, and gradually sank, and died on the 16th.

Post-mortem twenty-nine hours after death. The body measured 5ft. 5in., and was emaciated; hair dark brown.

Cranium. Brain. The vessels of the membranes were congested. There were a few miliary tubercles on the pia mater on the upper surface of the hemispheres, and a few small patches of tough lymph in the same situation; at the base of the brain and in the Sylvian fissures were great numbers of miliary tubercles surrounded by tough lymph. The convolutions on the surface of the brain were flattened; the puncta vasculosa numerous. In the right centrum ovale minus was a caseous mass the size of a pea, which was surrounded by softened brain-tissue. The lateral ventricles contained about four ounces of clear fluid; the septum lucidum was softened and broken down.

Thorax. Pleura. There were a few adhesions of the upper part of each pleura.

Lungs. In the upper lobe of the right lung were numerous small cavities (chiefly about the size of a chestnut), with fibrous walls and containing purulent debris; all parts of the lung were intensely congested, and contained great numbers of miliary tubercles, both gray and yellow.

The left lung resembled the right, with the addition of several cretaceous and caseous masses in the upper lobe.

Heart, nat.

Liver, nat., 46 oz.

Spleen, nat., 5 oz.

Kidneys, nat., 14 oz.

Alimentary canal, nat.

The table on page 37, which I have compiled as an appendix to the last case, contains all the cases in which tubercle has been found in the brain or its membranes since 1860, as recorded in the post-mortem books at St. George's Hospital, arranged according to age.

It will be observed, that of the fifty-four cases contained in the table, seven occurred in the first five years of life, ten between the ages of five and ten, nine between ten and fifteen, nine between fifteen and twenty, six between twenty and twenty-five, seven between twenty-five and thirty, one at the age of thirty, one at the age of thirty-seven, two at the age of forty, one at forty-eight, and one at forty-nine; or, dividing the ages into periods of ten years, seventeen occurred in the first ten years of life, eighteen in the second period, thirteen in the third, two in the fourth, four in the fifth, and none later.

Of those occurring in the first decade, in one the tubercle was ascertained to exist only in the brain, and in two the examination was not carried further; the lungs were affected in thirteen, the spleen in five (in one of which it was the only organ affected besides the brain), the peritoneum or intestines in three, the kidneys in four, the liver in two, the bronchial glands in one, and one had pericarditis. In the second decade, in two cases the examination was not carried beyond the brain, and in one the brain alone was found to be affected; the lungs were affected in fourteen (and the lungs alone in seven), the spleen in four, the peritoneum in two, the pancreas in one, the kidneys in four, the bladder in one, the mesenteric glands in two, the bronchial glands in one, the liver in

two. In the third decade, in two tubercle was found in the brain alone, in eleven it was also found in the lungs (in seven of which it did not extend further), in two in the peritoneum, in one in the spleen, in three in the kidney. In the two cases which occurred between thirty and forty, tubercle was found in the lungs of both, and in the peritoneum of one. In the four that occurred in patients above the age of forty, tubercle was found in the lungs of all, in the kidneys of one, and in the spleen of one, and in one of them the tubercle was situated in the cerebellum.

Three cases occurred at the age of twenty-five, ten cases after that age, and forty-one before it. In every case above the age of twenty-five the lungs also were affected. Of the whole number of cases, in only four was the brain ascertained to be the only organ affected at the ages of seven, eighteen, twenty-two, twenty-five; of which the one aged eighteen was a female, the other three males; and in four cases also at the respective ages of nine months, five, ten, and thirteen years, the examination was not carried further. It is curious that in both the cases in which the cerebellum, and not the brain proper, was the seat of tubercle, the patients were males (at fourteen and forty), and the same organs affected, viz. the lungs and kidneys.

There are also sixteen cases, of which I have compiled another table, of meningitis occurring in tubercular patients, but in which there is no record of tubercle having been found in the brain. In fact, in some there is a special record, with regard to the brain, that 'no tubercle could be found.'

Into the question whether there are cases of true tubercular meningitis I do not propose to enter here, further than just to notice the two following opinions given in text-books on this point.

Dr. Aitken says:* 'The meningitis which accompanies the cachexia associated with tuberculosis is of a very distinctive kind, and frequently terminates the lives of tuberculous children. Its *essential morbid character* consists in the growth of tubercle on the arachnoid, generally in

* *Science and Practice of Medicine*, vol. ii. p. 273.

the shape of small miliary granules, resembling in appearance the Pacchionian bodies, but differing from them in minute structure and position.'

Dr. Austin Flint says: 'A case may, however, present during life all the symptomatic phenomena of tuberculous meningitis, and after death the brain present *neither yellow tubercle, miliary granulations, nor coagulable lymph recognisable with the naked eye*; the morbid appearances consisting of effusion into the ventricles, and softening in the neighbourhood of the ventricles from pressure and imbibition of liquid. Such a case has recently fallen under my observation; and in this case the pathological character of the disease was shown by the presence of gray tubercles in the lung and spleen.'

In the following table I have again arranged the cases according to age, recording in each case the state of the brain and the organs affected with tubercle.

Age.	Sex.	Organs affected.	Condition of Brain.
2	F.	Lungs, spleen, peritoneum, and intestine	Wet and pink.
2½	M.	Lungs	Fluid in ventricles.
5	M.	Lungs, liver, intestines, glands, kidneys	Lymph at base; substance softened.
6	M.	Lungs	Lymph at base; fornix softened; much fluid in ventricles.
11	F.	Lungs	Lymph on surface; fluid in ventricles.
13	F.	Lungs	Central parts softened; fluid in ventricles.
16 ?	M.	Cretified in lungs	Congested; no lymph.
20	M.	Lungs	Lymph at base; substance softened; 'no tubercle could be found.'
25	M.	Lungs, spleen, and glands	Much fluid; substance broken down.
28	M.	Lungs	Lymph in arachnoid; brain wet and soft.
31	M.	Lungs	Lymph at base.
32	F.	Lungs, peritoneum, liver, spleen	Lymph at base; ventricular fluid; central parts softened; 'no tubercle could be found.'
36	F.	Lungs	Slight excess of fluid under arachnoid; 'a blood membrane.'
39	F.	Lungs (epileptic fits)	Pale anæmic; subarachnoid fluid; 'no tubercle could be found.'
42	M.	Lungs (kidneys congested)	Membranes congested; fluid in arachnoid and ventricles; a little blood extravasated.
55	M.	Lungs	Much lymph; brain watery.

In every one of these cases the lungs were the seat of tubercle, and in twelve of them the lungs alone. In one of these twelve cases the tubercle was in a state of cretification, in one the kidneys were congested, one had epileptic fits. Of the remaining four cases, tubercle was found in the spleen of three, in the peritoneum or intestines of three, in the liver of one, in the glands of two, and in the kidneys of one. With regard to the condition of the brain in these sixteen cases, we find in three of them a special note that 'no tubercle could be found;' in eight of them lymph was found on the brain; in nine, excess of fluid in the ventricles, or under the membranes; in three, the brain is said to be 'watery,' or 'wet;' and in five, the substance is said to be 'softened,' or 'broken down;' in one case it is recorded as being congested; and in one case, pale and anæmic.

It will be seen, that of the above sixteen cases, ten are males and six females. Of these cases, two occurred under the age of five years, two between five and ten years of age, two between ten and fifteen, one between fifteen and twenty, one between twenty and twenty-five, two between twenty-five and thirty, two between thirty and thirty-five, two between thirty-five and forty, one at forty-two, and one at fifty-five. Thus we find four of these cases occurring in the first ten years of life, three in the second decade, a like number in the third, four in the fourth decade, one in the fifth, and one in the sixth. Eight cases occurred under the age of twenty-five, and the same number above that age.

Thus we see that whilst of those cases in which tubercle was found in the brain or its membranes nearly four times as many occurred under the age of twenty-five as above it, in those in which no tubercle was found in the brain the numbers that occurred before and after the age of twenty-five are exactly equal.

Age.	Sex.	Organs affected besides the Brain and its Membranes.
9 m.	M.	No further examination.
2 years.	M.	Lungs and spleen.
2 "	F.	Lungs and spleen.
3 "	F.	Lungs and bronchial glands.
4 "	F.	Lungs (pericarditis).
4 "	M.	Lungs, peritoneum, and intestines.
4 "	M.	Lungs, liver, and spleen.
5 "	M.	No further examination.
6 "	F.	Lungs and right kidney.
7 "	M.	Lungs, peritoneum, and large intestine.
7 "	M.	Lungs, kidneys.
7 "	M.	No other organ.
7½ "	M.	Lungs, spleen.
8 "	M.	Lungs, kidney.
8 "	M.	Lungs, peritoneum.
9 "	F.	Spleen.
9 "	M.	Lungs, liver, spleen, kidneys.
10 "	F.	No further examination.
11 "	F.	Lungs.
11 "	F.	Lungs.
13 "	F.	Lungs, spleen.
13 "	F.	Lungs, liver, spleen, peritoneum.
13 "	F.	No further examination.
13 "	M.	Liver, kidney.
14 "	M.	<i>Cerebellum</i> , lungs, kidney.
14 "	F.	Lungs, bronchial glands, spleen, liver, kidneys.
16 "	M.	Lungs.
16 "	F.	Lungs.
16 "	F.	Lungs, peritoneum, spleen, pancreas, kidney, bladder.
17 "	F.	Lungs.
17 "	M.	Lungs.
18 "	F.	No other organ.
18 "	F.	Lungs.
18 "	F.	Lungs, mesenteric glands.
18 "	M.	Lungs, mesenteric glands.
22 "	M.	No other organ.
22 "	F.	Lungs.
23 "	M.	Lungs, peritoneum, spleen.
23 "	M.	Lungs.
24 "	M.	Lungs.
24 "	F.	Lungs, peritoneum, kidney.
25 "	M.	No other organ.
25 "	M.	Lungs.
25 "	F.	Lungs, kidney.
26 "	M.	Lungs, kidney.
26 "	M.	Lungs (cretified).
28 "	M.	Lungs.
29 "	M.	Lungs.
30 "	M.	Lungs.
37 "	F.	Lungs, peritoneum.
40 "	M.	<i>Cerebellum</i> , lungs, kidneys.
40 "	M.	Lungs.
48 "	F.	Lungs and spleen.
49 "	M.	Lungs.

This table contains 54 cases, of which 31 were males and 23 females.

IV. NOTES OF LECTURES ON MIDWIFERY AND DISEASES OF WOMEN AND CHILDREN.

By R. G. LEE, M.D. CANTAB.

PART I.

LECTURE I. *Course and Management of a Case of Natural Labour.*

LABOUR properly commences with contraction of the uterus, diagnosed by regularly recurring pains, dilatation of the os uteri, and tension of the uterus—perceptible through the abdominal walls. When the os uteri is dilated to 2-4 inches the membranes usually burst. The head is placed obliquely in the brim of the pelvis, the occiput to the left side of the symphysis pubis: at this period an interval of rest. The head descends till it occupies the pelvis, the occiput behind the symphysis pubis, the forehead in the sacral cavity. The perineum is distended by the forehead as it passes out. When the head is quite external it turns half round, so that one shoulder lies on the perineum, the other behind the symphysis pubis, and the body is expelled in that position. After a few minutes the placenta is expelled.

DIRECTIONS FOR MANAGEMENT.

1. The room to be kept cool and well ventilated.
2. Movement to be encouraged till the pains become frequent, or the patient prefers rest.
3. Stimulants forbidden, and no food forced on the patient.
4. The bowels to be relieved by enemata.
5. The presentation to be ascertained by examination; the patient should not be left if the os uteri is dilated to two inches.

6. The binder, thread, scissors, pins, &c. to be conveniently ready.

7. Examinations to be made at intervals according to the recurrence and power of the uterine contractions.

8. The membranes to be allowed to rupture spontaneously.

9. A poultice, or hot fomentation, to be applied to the perineum.

10. The perineum to be firmly supported as the forehead escapes.

11. When the head is born the mouth of the child to be cleared of mucus, the cord loosened if round the neck, and the body allowed to pass out without traction.

12. The cord to be tied at 2 in. from the umbilicus, again at 3 in., and divided between the ligatures.

13. The binder to be applied.

14. If the placenta is not expelled in a quarter of an hour, but can be felt with the finger, it may be removed.

15. The patient to be examined occasionally during an hour to ascertain if there is any hæmorrhage.

a. If the head presents, no interference usually required for twelve hours.

b. Hæmorrhage and retention of the placenta more frequently occasion difficulties than other causes.

c. If there is hæmorrhage before the placenta is expelled it must be removed.

d. If there is no hæmorrhage the placenta may remain an hour or more.

LECTURE II. *The Placenta: its Anatomy and Physiology.*

The placenta is developed from the decidua, a structure produced by contact of the ovum with the surface of the uterus, a Fallopian tube, or the peritoneum. In the two latter cases the gestation is 'extra-uterine.'

A matrix, large sinuses, fibrous dissepiments, and villi of the chorion are combined in the placenta.

The *maternal* blood circulates in the sinuses, *fœtal* blood in the villi; the former enters the sinuses from the curling arteries of the uterus, and leaves them by the uterine veins; the latter enters the villi from the divisions of the

two arteries of the umbilical cord, and leaves the placenta through the umbilical vein. The foetal and maternal blood do not mix, but the processes of oxygenation and absorption are effected by the exposure of the foetal blood in the villi of the chorion to the influence of maternal blood in the sinuses of the placenta. (*Vide Jour. Anat. and Phys.* No. XI. 1872, Turner.)

Remarks on the differences in the general plan of foetal development in various classes of vertebrata.

LECTURE III. *Various Kinds of Presentation.*

The head may present, with the occiput behind the symphysis pubis, and the forehead towards the sacrum, or *vice versa*. As it passes into the pelvis it is placed obliquely, so that the occiput or forehead may lie left or right of the symphysis pubis. The face also may present. When the forehead lies behind the symphysis pubis the case is usually protracted.

The nates or feet may present. The chief difficulty is the extraction of the head before the cord is pressed upon and the child killed. The arms must be brought down when the body has passed through the vagina.

The arm may present. Turning must be performed, if possible, before the membranes rupture. If the arm is external and the child is dead, turning may be performed if the uterus is not contracted. If it is, it is best to deliver with the crotchet, by removing the arm and opening the thorax.

The cord may descend before the head, or with another part. If it is pulsating, turning should be performed; if not, the crotchet should be employed.

The placenta may present. If the edge of it lies over the os uteri, the membranes should be ruptured. The pressure of the head will prevent hæmorrhage. If the hæmorrhage is so profuse, and the placenta so extensively covers the os uteri as to require immediate delivery, turning must be performed.

1. *On the method of delivery in nates and feet presentation.*

2. *On the method of turning.*

LECTURE IV. *Remarks on the Various Kinds of Forceps and the Method of Extraction.*

The forceps may be used in cases of head or face presentation when the contractions of the uterus are too feeble to expel the child. When the head is in contact with the perineum, the short straight blades may be used. The long forceps are intended for cases where the head is higher up. If the contractions of the uterus have been strong and regular, and the head has not passed through the brim of the pelvis, it is probable that the pelvis is too small, or the head is too large or too much ossified to permit of the use of the forceps. If it is certain that the child is dead, the crotchet must be used, and not the forceps.

DIRECTIONS FOR APPLYING THE FORCEPS.

The patient is placed on the left side, as close as possible to the edge of the bed.

The first blade may be applied over the lower side of the head. The fingers of the right hand are first introduced over that part of the head, and the blade inserted with the left hand. The fingers of the left hand are then passed in the same way over the upper surface of the head, and the other blade inserted with the right hand.

LECTURE V. *The Method of Extraction with the Crotchet.*

The perforator is intended to be used when the head is too large or the pelvis too small to allow of natural delivery, and when the forceps cannot be applied. It may also be used in other cases to be specially mentioned. The patient is placed as for application of the forceps. Two fingers of the left hand are passed up till they touch the surface of the head. Perforation is effected by passing the point of the instrument along the fingers, and by pressing it with sufficient force, and with revolving movement, on one of the lines of sutures. The opening thus made must be enlarged, and cerebral matter to some extent removed.

The crotchet is introduced into the opening made with the perforator. The shaft is held as firmly as possible

with the thumb and third and fourth fingers of the left hand, while the two other fingers are pressed on the outside of the skull opposed to the point where the crotchet is applied to the internal surface.

The hook at the other end of the crotchet is held with the right hand. In making traction lateral movement must be avoided, and the direction of the axes of the pelvis observed.

LECTURES VI. VII. 1. *The Diagnosis of Deformity.* 2. *Degrees of Deformity.* 3. *The Method of Delivery in Cases of Deformity.* 4. *Instruments intended to assist in Delivery.* 5. *The Method of inducing Premature Labour in such Cases.*

Deformity of the pelvis may be caused by *rickets* or *osteomalakia*; the former a disease of early, the latter of advanced life. Deformity from rickets is produced before the bones have acquired sufficient rigidity to support weight and resist muscular contraction. In osteomalakia, bones previously healthy become flexible in consequence of removal by absorption of the salts of lime, &c.

The induction of premature labour must not be neglected in any case where the deformity is sufficient to prevent delivery at the full period.

LECTURE VIII. *Remarks on the Diagnosis of Pregnancy: when doubtful, concealed, or complicated with Tumours.*

Two hundred and eighty days is the usual period of pregnancy.

Pregnancy is diagnosed

1. By examination of the abdomen with both hands, as for ovarian tumours.
2. By percussion of the lower part of the abdomen. The margin of the uterus may be defined in this way when it cannot be perceived by examination. (1.)
3. By examination of the os uteri with the finger of the right hand, the left hand being pressed on the abdomen over the fundus uteri.

4. By the ear or stethoscope applied to the abdomen for placental soufflet or foetal heart.

Other symptoms of pregnancy are cessation of catamenia; enlargement of the breasts; slight elevation of the glands which surround the nipple, about twelve in number; dark colour from deposit of pigment round the nipple; possibility of pressing milky fluid from the nipple. The os uteri becomes larger, softer, and shorter, as pregnancy advances.

LECTURES IX. X. *General and Microscopical Examination of the Ovum. Remarks on Special Methods of Treatment.*

THE CONNECTION BETWEEN THE FŒTUS AND THE UTERUS
AT SUCCESSIVE PERIODS OF PREGNANCY.

The foetus is enclosed in a membranous sac—the amnion: the amnion is surrounded by the chorion, and the chorion by the decidua.

The chorion is covered with villi, which coalesce with the decidua after the sixth or seventh week of gestation. The villi next to the uterus gradually develop and form the chief part of the placenta. The other villi disappear; so that the chorion, decidua, and amnion are in close contact, and form the ‘membranes’ at the end of pregnancy.

There are no blood-vessels in the villi of the chorion before they unite with the decidua, and then it is only in those villi which form the placenta that vessels develop.

The whole surface of the uterus is covered with the decidua at the commencement of pregnancy. Almost the only part which remains is that which forms the placenta.

ON THE EXAMINATION OF THE ABORTED OVUM.

To determine whether the substance expelled from the uterus is an ovum or not, it is best to place it, clots and all, in water, and wash away the blood by letting water drop upon it for several hours.

HÆMORRHAGE, ABORTION, AND MISCARRIAGE.

When hæmorrhage occurs at any period of pregnancy we may anticipate premature labour. The cause may be

the death of the foetus, disease of the chorion or placenta, disease of the uterus (cancer or fibrous tumour), sudden mental disturbance, violence, or certain poisons acting on the mother: any of these may cause labour to be premature. Practically it is not of great importance to determine the cause, except to give a prognosis whether the symptoms may be averted by treatment or not.

Treatment. The hæmorrhage caused by the séparation of the decidua from the surface of the uterus may sometimes be arrested, and the process of gestation continue to the full period. To favour this, the treatment has in view the prevention of uterine contraction and the coagulation of effused blood. The introduction of a sponge or any substance or fluid into the vagina will provoke uterine contractions. If the hæmorrhage does not cease soon it is proper to hasten delivery.

Some remarks on the treatment of the placenta when retained after abortion. If hæmorrhage continues after abortion or premature labour, we may suspect that a portion of the placenta remains. The symptoms of septicæmia will soon occur. The finger or forceps must be used to remove the placenta, and frequent injections of disinfectant fluids administered.

LECTURES XI. XII. *Menstruation and the Functions of the Ovaries. A Comparison between the false and true Corpus Luteum. Remarks on the Physiology of Nutrition and Circulation in the Fœtus.*

Menstruation is a periodical change in the uterus and ovaries. Hyperæmia of the mucous membrane of the uterus and exudation of lymph and serum occur in the uterus. The rupture of a Graafian vesicle and the evolution of an ovum occur in the ovary.

When impregnation takes place a corpus luteum is found in the ovary, from which the ovum has escaped. The corpus luteum is a peculiar change between the stroma of the ovary and the external membrane of the Graafian vesicle. It is important to examine the ovaries in post-mortem cases of suspected abortion.

THE FŒTUS.

Examination of the foetus to determine its probable age, the cause of death, and other questions of medico-legal importance.

The length of a full-grown foetus is about 18 in., and generally the number of inches will be found double the number of months of intra-uterine existence. The average weight of a foetus of nine months is 9 lbs., and generally the number of pounds' weight will be found equal to the number of months of intra-uterine existence.

The most certain test that a foetus is fully developed is the presence of a centre of ossification in the distal end of the femur.

V. NOTES ON SOME CASES OF DEATH AFTER CONFINEMENT.

By CLEMENT WALTER.

CASE I. H. V., single, primipara, æt. 20, was delivered on the 3d April 1874 of a female child, after an easy and natural labour; but shortly after delivery some sharp hæmorrhage occurred, which was, however, quickly checked, and she was left apparently comfortable, with nothing to excite alarm.

The following morning she was slightly feverish; the tongue was covered with a whitish-looking fur, and marked with the impression of the teeth. Pulse 120; temp. $102\frac{1}{2}^{\circ}$. She passed a rather restless day, but seemed to improve towards evening. The next morning, however, she was much worse; intense tympanitis having set in, the abdomen being enormously distended, with the characteristic pain of tympanitis. There was almost complete suppression of the lochia and also of urine during a period of thirty-six hours; during this time catheterism was performed, but without any result. Pulse 150; temp. $105\frac{1}{2}^{\circ}$.

Turpentine enemata and bran poultices with hot stupes appeared to relieve the distension from time to time; but from this period she got steadily worse. The suppression of urine was relieved, but the pulse rose to 140, respiration 36 to 40 in the minute; the temperature varied from 102° to 107° ; and she died on the fifth day.

The treatment consisted of opium, saline febrifuges, brandy, ice, eggs, arrowroot, beef-tea, and port-wine, of all of which she partook freely.

There was no post-mortem examination in this case.

CASE II. E. N., single, primipara, æt. 20, was delivered on the 13th March of a living male child, after a short and natural labour.

The girl was suffering from gonorrhœa at the time, and from the first moment, up till the date of her death, there was complete suppression of the lochia.

The case went on most favourably until the morning of the fourth day, when the symptoms noticed in the previous case manifested themselves, with a great deal of tenderness, on pressure, over the region of the uterus. This increased very much, and she got rapidly worse. There was no suppression of urine in this case, and she took her food and stimulants very freely indeed. She appeared to rally under treatment for a few days, and we began to hope that she might pull through, when the symptoms returned with great force, and she died on the 23d March, apparently from exhaustion.

The pulse ranged from 120 to 160, and her temperature from 102°

to 107°. There was also a good deal of muttering delirium in this case, with slight diarrhoea.

The treatment was the same as in the last case.

Post-mortem examination. Nothing unusual was found; all the organs were healthy, but there was a well-marked patch of peritonitis about two inches square on the right side.

CASE III. M. A. R., single, primipara, æt. 19, was delivered on the 25th June of a living female child, after a labour presenting no unusual appearances, except that she suffered from intense vomiting for two or three days before her confinement, and which continued during labour and for about twenty-four hours afterwards, being only slightly relieved during the whole time by treatment.

Symptoms of purely localised metritis appeared about twenty hours after confinement, but she rapidly sank, and died on the fourth day. There was no diffused peritonitis, no tympanitis, no suppression of the lochia or of urine, but there was very severe diarrhoea, which was slightly checked by enemata and the administration of sulphuric acid and opium.

Her pulse and temperature were the same as in the foregoing cases; there was no delirium, but the localisation of the pain was very distinct, for outside the circle of inflammation, as it were, there was not the slightest feeling of uneasiness. Great relief was found from fomentation of poppy capsules and bran poultices and stupes.

Post-mortem examination showed that all the organs were healthy, but there was intense inflammation of the whole internal surface of the uterus, and at the spot where the placenta was attached was found a good deal of pus.

This girl did not take her food and stimulants at all well from the first.

CASE IV. S. II., single, primipara, æt. 20, was delivered on the 9th July of a living male child, after a remarkably easy and natural labour.

Two or three days before she had vomiting of a most offensive character, which subsided under treatment, and she progressed satisfactorily till July 13, when some tenderness was noticed over the abdomen, together with great feverishness and restlessness. She was of a most excitable temperament, and constantly screamed and shrieked violently, without, so far as we could discover, any adequate cause. Poultices were applied, and a mixture of large doses of quinine with opium and carbonate of ammonia was ordered. Her pulse was 150, and from this time till her death it never fell. Her temperature ranged from 102° to 107°, reaching the latter point on several occasions during her illness.

She took her nourishment very freely during the whole time, which was the same as had been previously given. She had intense tympanitis, the abdomen being distended to a most extraordinary size on several occasions. This was relieved by enemata of turpentine with chloroform, &c., and she then complained of no pain; but it frequently returned. She was constantly delirious, screaming, and complaining of intense headache and pains about her; but for about three days before her death she was free from all suffering, but was con-

stantly in a state of low muttering delirium, picking the bedclothes and rolling her head from side to side. She took food and wine freely to the last, but sank and died on the 27th July.

Post-mortem examination revealed only a small patch or streak—of about two inches and a half in length, and about one inch in breadth, on the right side—of peritonitis.

The uterus was large and flabby, but there was no trace of inflammation. The kidneys, liver, and bladder were in this, as in all the other cases, quite healthy; but there was great hypostatic congestion of the lower portion of the left lung, and a good deal in the lower part of the right lung; the upper portions in both were healthy and natural. There was considerable œdema of the right leg, but no clot was found in the veins.

Remarks. Of the foregoing cases, which occurred in the hospital attached to the Dover Union, Nos. 1 and 3 were attended at the time of delivery by a friend, No. 2 by my father, and No. 4 by myself; and in no case except No. 3 was there any complication, retention of placenta, prolonged labour, or any cause that might have led us to apprehend such fearful results. All were young healthy women, except No. 3, who appeared to be in a very low state of health upon her admission; and their previous hygienic conditions were in no way different from those of our usual cases. They were not admitted into hospital till just before their confinement; and No. 4 particularly had been selected by a lady as wet-nurse to her child.

The subject of puerperal fever is one of absorbing interest to the practitioner, for I know of no cases that cause more anxiety than those of parturient women. These cases were the first that I have lost in over two hundred and fifty cases, and they were the first that had occurred out of three hundred cases that have been confined in the hospital during the last seven years.

The hospital is a long building consisting of two stories, the lower one being devoted to male patients, and the upper one to the females. Each long ward, of which there are two on each floor, contains eleven beds, with a cubic space of about five hundred feet to each bed, that being the amount of space as laid down in the Poor-law regulations, and a small ward at one end of either ward containing two beds. On the upper floor are two similar wards,

and in the centre, between the wards, are four rooms, each containing one bed, three being devoted to lying-in cases, and the fourth is the head nurse's bedroom.

The first case occurred in Ward (say) A, and after the death of the patient this was closed, and completely cleaned and disinfected, and all the bedding removed. The second occurred in the opposite ward, and after the death that took place here the patients were removed to another building, and the hospital was subjected to a thorough process of cleansing and disinfection.

The other cases were in the same wards, at the intervals mentioned. These wards are now closed, and the other cases of delivery, of which there were several—six or seven, and which, I am thankful to say, have done well—were removed to a small building close to, but separated from, the large building, and out of some thirty-six cases that I have attended since the first patient was attacked, and several that my father has attended, there has not been any cause for uneasiness. All have done well. I may just mention that all the children are alive. The first case occurred on the 3d of April; before that time, during the winter and spring, we had a great deal of erysipelas of a most severe character, and four males died, two being very old men, and two younger men, who were suffering from large chronic ulcers on the leg. The two old men were cases of idiopathic erysipelas. Six other males were attacked, but all recovered. There has also been a good deal of erysipelas during the last nine months in private practice, but I have only heard of two deaths in the town of Dover after confinement, the particulars of which I am unable to give. These cases were all amongst men, and consequently on the lower story, and as they occurred were removed to an entirely separate building, and separate nurses told off to attend them, with express orders not to enter the general buildings. My father and myself were also most particular to see these cases last of all, just before leaving the building. Our nurse, who is a most experienced and trustworthy person, was also warned of the grave importance and necessity of keeping herself isolated from any patient suffering from erysipelas. The

drains are all good and in order, and no smell has been noticed except on one occasion, which was after the first patient died, but I cannot recall the exact date.

Case No. 3 was one of undoubted uterine phlebitis, but no local signs of blood-poisoning occurred, owing perhaps to the short time that the patient lived. The absence of peritoneal mischief in the other two cases is, I think, remarkable. Had it subsided before death, and simple inability to rally been the cause of death? Amongst the various, and in many cases conflicting, opinions put forward by various authors, we have great difficulty in forming one that is at all satisfactory.

There can, I think, be no doubt that in this epidemic we must come to the conclusion that it was peritonitis connected with erysipelas, or of an erysipelatous character, if we are to regard the views put forward by various writers as correct; and they certainly appear to be more applicable to these cases, because, with the exception of one case, there was no visible inflammation of the uterus, or of the uterine appendages—for nothing noticeable was found in the ovaries—or of the omentum and intestines, for no signs of inflammation were found in these. With regard to the view held by some, that it is a fever of a peculiar nature, I think we can hardly venture into the region of speculation when the cause lies, as I think it does, so near at hand.

The epidemic commenced, as has been seen, in April, which appears from statistics to be the most fatal month in the year; but at that time the cases of erysipelas were really all convalescent, and all the deaths had occurred before the first of these cases, though some patients were in the stage of convalescence.

I may mention here that, from a careful examination of the facts that we have seen, I think we must come to the conclusion that contagion was conveyed in one or more of the following ways. Either, in the first place, by certain linen from the lying-in wards having been mangled, along with other clothes which came from the hospital, by a man in whom a few days afterwards erysipelas broke out, though it did not prove fatal. This happened a con-

siderable time, however, before the 13th April, and thus, in my opinion, contagion from that source is precluded. Or, secondly, the contagion was conveyed by the atmosphere from the ward below, where were the males at the commencement of their illness, and so introduced through the windows into the room above, where the lying-in women were. Or, thirdly—and here, I think, we come to the most important point—it was conveyed by the drains from the lower wards, which run at right angles with a pipe leading from a water-closet situate between the two lying-in wards opposite one another. The latter, I think, is a feasible explanation: the excreta from some erysipelas patient being conveyed along the one pipe, any deleterious matter might easily pass up the drain which communicates with the up-stairs closet, and thus have commenced its insidious and fearful ravages. All our lying-in cases are now removed to an entirely separate building.

Much might be written on this subject; but as I have only ventured to bring forward short and general notes of each case, I shrink from occupying space that will be better filled. But I hardly dare to look forward to future cases; and it is a question of great and absorbing anxiety to me as to what shall be done, in the first place, to prevent the spread of this epidemic, and also by what means we may avoid in future a similar fatal visitation.

VI. NOTES ON MIDWIFERY.

By R. P. WINTLE.

OF 650 cases of midwifery, 6 in my private practice have died from the following causes: convulsions, 1; abscess in skull, 1; puerperal fever, 2; smallpox, 1; hæmorrhage, 1.

The particulars are appended to this paper.

It is very common to hear of practitioners who have never lost a case of midwifery; it is also unfortunately far too common to hear of women dying in child-bed. The explanation may be that these fortunate ones have no notes of their cases, and memory tells a flattering tale, or that they attribute their deaths always to the predisposing causes.

Until I had been some time in practice I did not use the valuable 'Register' recommended by the Obstetrical Society; the following calculations, therefore, are made from 600 cases.

I have omitted to reckon the average duration of labour. It seems to me scarcely any guide to the gravity of a case or the necessity of interference. One woman after six hours will be distressed; another will have propulsive pains frequently for forty-eight hours, and do very well; whilst others (multiparæ in the labouring class generally) will be in gentle labour for four or five days, and finish up on Saturday night, after they have washed the other children and put them to bed.

Of 600, 103 were primary.

In 200 cases the average time from the end of the catamenia till labour was 276 days.

In 28 cases the average time of quickening was a few days after the end of the fourth month.

605 children were born. Of the twins, in two cases both were girls, in the other three a boy and a girl. The presentations: head, 6; feet, 1; foot and cord, 1; unknown, 2. All alive. One child was born with imperforate rectum three-quarters of an inch from the anus, and died on the

second day, after the meconium was let out by means of a bistoury.

There were two cases of spina bifida. One lived for two months, in spite of constant convulsions; the other lived for one month, also almost constantly convulsed. Both were children of drunkards.

Of the 605 children, 584 were born alive. Of the 21 dead, 9 were viable and 12 dead before labour. Six of these were putrefying, and of these six the mothers of two were undoubtedly syphilitic. In one case, at the end of the fifth month the mother was severely frightened. The breasts soon after became flaccid, but she went her full time. The foetus was born before I arrived; it appeared to be about six months; the skin was peeling, but it was not offensive. About midway between the child and placenta the cord was tied in a knot; between the knot and the child the cord was small and perfectly bloodless. The presentations were as follow:

	Non-viable.	Viable.	
		Living.	Dead.
Head	2	512	5
Breech	2	9	0
Feet	3	3	0
Foot and cord	0	1	1
Face	0	2	0
Elbow	1	0	0
Unknown	4	57	3
	12	584	9

	Delivered.		
	Living.	Dead.	
		Viable.	Non-viable.
Naturally	563	3	11
Forceps	16	1	0
Turning	5	4	1
Craniotomy	0	1	0
	584	9	12

Of the forceps cases, 9 were primiparæ. In all but No. 6 of the fatal cases subjoined, the mothers and children did well. The forceps used were, in nearly all cases, Simpson's. The cases which seem to me to call for the use of instruments are where the pains are strong and frequent, with the head well clear of the os uteri, no progress being made, and the mother conscious of, and distressed at, the uselessness of her pains. I have always been afraid to use long forceps, and where the head does not enter the pelvis resort to turning.

As curiosities, I may mention a primipara who, after a very difficult labour, had considerable emphysema of the right neck and face, and tenderness of the right side of the thyroid cartilage. This disappeared in ten days without treatment; and another primipara, verging towards forty, but fat and strong, in whom, after a capital pain, my examining digit, instead of coming upon the mucous membrane, fell into a bed of fat, the posterior wall of the vagina having cracked like a sheet of paper. Nothing came of it, and the lady has since had another easy and natural labour.

The fatal cases were the following:

No. 1. Mrs. B., æt. 40, had had five natural labours. In the morning of the 24th Nov. 1863 (being in great anxiety about a bad son) she felt sick and giddy. Ate a hearty dinner; at 4 P.M. had a fit, and became stupid, but not immediately insensible. At 8 P.M. I saw her; she was breathing stertorously, with fixed dilated pupils; pulse 100, hard and full. The convulsions recurred about every fifteen minutes, and in them the mouth was drawn to the right side; after each one the respiration was laboured for a minute or two. In consultation with Dr. Llewellyn Williams she was bled to 30 oz. This softened the pulse, and made the pupils act a little. Chloroform was then administered for half an hour; but the convulsions went on. At this time the os uteri was thick, hard, and undilatable; after two warm injections into the rectum it became softer, and by 2 A.M. I delivered her, by turning, of a dead child. The convulsions continued till 4 A.M., and she died soon afterwards, exhausted, in spite of stimulants.

No. 2. Mrs. B., primipara, was delivered on the 7th Sept. 1864 of a six-months' child dead. At the time of labour she was suffering from diarrhœa, and was too weak to walk across the room. The pulse at the time was 120, and remained high. On the 9th she had a rigor. 10th. More rigors and profuse perspiration. 11th and 12th. She had no rigor, but was delirious at night. On the latter day I noticed the left eye protruding a little, and cedema of the left cheek. On the 14th she

was removed to St. George's Hospital. The note on admission was : The patient is partly conscious. Left face very cedematous.

15th. Unconscious. (Edema of face increased. Abundant purulent discharge from left ear. Left side of mouth drawn down. Pulse 112, intermittent. Obiit.

Post-mortem. Pus in subarachnoid space on upper surface of both hemispheres, more in front; also about pons varolii and cerebellum. Pia mater and brain very vascular. Pus in lateral ventricles. Left lateral sinus full of flabby purulent matter. Wall of lateral sinus in contact with temporal bone destroyed, and bone carious at that spot. The cavernous sinus and ophthalmic vein contain dark sanious matter; and round the latter, at the back of the orbit, is a small circumscribed abscess, size of hazel-nut. Caries of anterior surface of petrous portion, but not so deep as of posterior surface. Membrana tympani wanting. The two carious holes in the temporal bone communicate with each other, and with the external meatus. About an inch of internal jugular vein outside the skull is full of whitish flabby matter; below this a small clot, and the rest of the vein natural. Uterus normal for the time. Veins connected with uterus perfectly natural. The husband told me afterwards that for some months she had complained of pain in the left ear, for which he had been in the habit of blowing into that ear tobacco smoke.

No. 3. Mrs. P., æt. 38, has suffered from chronic bronchitis and emphysema for some years. Was confined early in 1865 (labour protracted and followed by flooding). Threatened miscarriage in February 1866, when four months pregnant; but went to eight months, and was confined at the end of June. The milk secretion failed in the third week, but she slowly recovered. She saw no catamenia after the last week in October, quickened on the 10th January, and after threatening labour for some days, was confined on the 23d July, with the aid of ergot and stimulants. By this time she was much emaciated, and suffered from constant cough and dyspnoea.

She did very well till the 27th, when she had a rigor, and I found her in the evening with an anxious countenance, pulse 130, and profuse perspiration. Lochia scanty, not offensive. Pain chiefly in hips and down legs.

On the 29th she was much better. Pulse in evening, 108. Milk secretion continued. Lochia scanty, but not offensive. From that time the pain in abdomen increased, and she sank, dying on the 2d August quietly, but rather suddenly, after too large a dose of opium, given by the friend who acted as nurse.

With reference to case No. 3, I would remark that pulmonary disease does not always affect recovery from labour.

I have had four patients in various stages of phthisis safely delivered, and one very severe case of double pneumonia.

No. 4. Mrs. S., æt. 35, very anæmic, mother of eight children; miscarried in June 1868. Was regular till the end of October, when catamenia ceased.

Was confined on the 26th July, after twenty-four hours' labour. After commencement of labour she carried a child suffering from malignant scarlet fever out of the very small room in which she was confined. She began to fail on the fourth day, and died on the twelfth, during my absence from town.

In connection with this case I have notes of three cases of undoubted exposure to the infection of scarlet fever within the first week after labour. In two of these cases there was a rash and strawberry tongue; the third had no rash, but rigors and tenderness of abdomen. The throat symptoms were slight in all three, and their recovery was very little retarded by this intervening danger.

No. 5. Mrs. W., æt. 22, primipara. Last saw catamenia October, 2d week, 1870. Sent for me the 24th June 1871 at 11 P.M., complaining of severe pain in the back. Labour went on slowly, and she was confined the 26th June, 11 A.M. Hæmorrhage was rather free and very dark. An hour after she complained still of pain in the back, but was otherwise pretty well.

27th. Pulse 160. Skin hot, covered with purplish papules. Much restlessness and thirst. Died the same evening. On inquiry, I found that seven days before parturition she had visited a family of whom two lay dead of smallpox at the time. I vaccinated the infant the same day. July 4th. Vaccination has proceeded regularly, but the vesicles are opaque and flat. Papules are appearing on head and face. July 8th. Body covered with purple vesicles. Died. This woman was confined in a small room in an over-crowded house.

No. 6. Mrs. W., æt. 41, mother of five children. Gray, with arcus senilis. Sent on the 9th Nov. 1871. Said she had been in labour some days, and the os was fully dilated. The head came down very slowly, and at 1.30, having half turned, became impacted. The short forceps were applied at 2 A.M. the 10th Nov., and delivery easily effected. The child, a large male, was quite dead; the head not marked. The placenta was adherent. The uterus contracted fairly. She went on well till the ninth day, when she had a violent flooding, which recurred on the seventeenth day after labour, and she died. In the intervening days the lochia had been scanty and offensive. Pulse rapid, feeble. No post-mortem.

VII. ON THE CONCURRENCE OF ZYMOTIC DISEASES.

By EDGAR G. BARNES, M.D. Lond.

IN the district in which I am engaged in practice, it is a prevalent idea that certain of the zymotic diseases—and noticeably measles and whooping-cough, measles and scarlet fever, scarlet fever and diphtheria—occur together, and that when one is epidemic, the other is likely to be epidemic also; or, in other words, that measles has something in common with whooping-cough and scarlet fever, either in its intrinsic nature, in its causes, or in the conditions which favour its development, and that the same or a similar relationship exists between scarlet fever, measles, and diphtheria. Now it frequently happens that a popular notion of this kind, though it may not be strictly and exactly true, may yet contain some elements, or have a substratum, of truth, and that as there has been said to be ‘a soul of truth in things erroneous,’ as well as ‘a soul of goodness in things evil,’ so, perhaps, there may be ‘a soul of truth’ in the saying of an old nurse—‘whooping-cough and measles always *go about* together.’ The object of this paper is to try to add one link to the chain of evidence necessary to enable us to say whether or not this be the case—to take one feeble step towards the discovery of this foundation of truth, if it exist, or towards demonstrating its non-existence and the falsity of the prevalent ideas, if they be false. Towards whichever of these conclusions our observations lead it matters not, so long as we seek *the truth*, even till we find it.

I had often asked myself the question, whether there was any foundation for these notions, and had often wished to see it solved; but I did not see the way by which to set about its solution until I read in *Public Health*

an abstract of a paper, by Dr. Buchanan, on the 'Concurrence of Epidemics.' To Dr. Buchanan, then, I owe entirely the ideas contained in this article; and to his courtesy I am indebted for being able to obtain a copy of his paper, and for leave to make use of it in conducting the somewhat tedious arithmetical processes, the results of which I shall endeavour to place before you as clearly and succinctly as the nature of the subject admits. Dr. Buchanan's paper is published in the second part of the third volume of the *Transactions of the Epidemiological Society*, and will well repay perusal by all who interest themselves in an inquiry of this nature. My method of investigation differs somewhat from that followed by him, but I shall simply point out one principal difference which is implied in the respective titles of the two papers. Dr. Buchanan writes on the 'Concurrence of Epidemics,' and he has defined a line at which a disease may be said to be epidemic. This I have not attempted. I have contented myself with adhering to the exact data given in the Registrar-General's Quarterly Returns, and have called mine the 'Concurrence of Zymotic Diseases,' but perhaps it might more appropriately be called the 'Concurrence of fatal Zymotic Diseases,' for it is only when fatal that the returns of the Registrar-General take cognisance of them. My observations have been made on what the Registrar-General calls 'registration sub-districts,' several of which are united to form a district which is, generally speaking, coextensive with a Poor-law union; and I have not taken the whole of these, but only such as did not at the last Census possess a population of 10,000; and the reasons for this limitation are:

1st. That the districts with large populations contain large towns in which the germs of zymotic diseases constantly exist, and in which they are always more or less *concurrent*, though they may not be epidemic.

2d. That these districts frequently contain hospitals, which, deriving their supplies from a large surrounding district, would tend to produce artificially a concurrence of zymotic diseases in the district in which they are situated.

On this basis I intended, when I commenced, to make an extended series of calculations from all the new series of the Quarterly Returns of the Registrar-General; but I found the work so laborious, and the time at my disposal for this purpose so limited, that I was compelled to curtail my observations, and content myself for the present with a far less ambitious scheme. I have many observations which I am unable to finish in time for this paper, so I simply present those I have entirely worked out, viz. those for the four quarters ending June, September, and December 1872, and March 1873, embraced in Nos. 94, 95, 96, and 97 of the Quarterly Returns of the Registrar-General.

The principle on which I base my observations is this: if between any two of these diseases (and I take the seven principal zymotic diseases of the Registrar-General, viz. smallpox, measles, scarlet fever, diphtheria, whooping-cough, fever, and diarrhoea) there is an affinity or antagonism—if any two of them own a common cause or antagonistic causes; if the conditions favouring the development of one be favourable or antagonistic to the conditions favouring the development of another—we may expect, nay we must find, corresponding departures from the frequency of their concurrence in either one direction or the other. On the other hand, if there be no such relationship of affinity or antagonism in either the diseases themselves, their causes or conditions of development, they will still concur, but that with a frequency which may be determined by mathematical laws with as much certainty as the Registrar-General foretells the number of fatal street accidents in London, or a life-insurance office estimates the calls on its income. To illustrate this, with as little reference to mathematical formulas as is possible, let me suppose a case. In one hundred registration sub-districts smallpox occurs in twenty and measles in ten. Required to estimate the probable number of times they will concur in the same district; all factors but that of chance being left out of the question. It is manifest that the measles would not concur with the smallpox in every case, supposing there to be no relationship between them, but that some

districts that were not affected by smallpox would be affected by measles, and *vice versa*. Measles occurring in one-tenth of the whole districts would occur in one-tenth of those affected by smallpox; and the probability of concurrence would be represented by one-tenth of one-fifth or one-fiftieth of the whole, *i.e.* in two cases; or, in another form, the probability of concurrence would be represented by the fraction $\frac{20 \times 10}{100} = 2$.

The rule for calculating the probable number of times any two diseases would concur is therefore this: multiply the number of times of *occurrence* of the one disease by the number of times of *occurrence* of the other disease, and divide by the number of registration sub-districts amongst which they are distributed, and the result gives the probable number of *concurrences* of the two diseases, supposing them to have neither affinity nor antagonism to each other; and any marked deviation from this standard in either direction (provided our observations are on a sufficiently extended basis to neutralise the effects of accidental variations) may be taken as evidence either of affinity or antagonism in the diseases themselves, in their causes, or in their conditions of development.

The first step in our inquiry, then, is to take the 1496 registration sub-districts containing under 10,000 inhabitants, and ascertain the number of those districts in which deaths occurred from each of the seven principal zymotic diseases; and this is shown in the accompanying table for each of the four quarters of which the death statistics are contained in Nos. 94, 95, 96, and 97 of the Quarterly Return of the Registrar-General.

	94	95	96	97	Totals.
Smallpox	342	185	116	111	. . 754
Measles	230	140	128	114	. . 612
Scarlet fever	285	262	304	271	. . 1122
Diphtheria	125	101	130	136	. . 492
Whooping-cough . . .	378	338	266	333	. . 1315
Fever	532	553	614	569	. . 2268
Diarrhoea	530	818	513	371	. . 2032

The next step is to calculate from these numbers the probable number of times each of the twenty-one pairs of diseases that can be made from the above seven will concur, to ascertain the actual number of such concurrences, and to compare the actual with the calculated numbers. This I have done, and have condensed the result into the following table. As the numbers vary so much, I have added a fourth column, in which the numbers in excess are reduced to a percentage rate, by which alone a fair comparison can be readily made :

Combinations of Diseases.	Calculated concurrences.	Actual concurrences.	Excess of actual concurrences over calculated.	Percentage of excess.
Smallpox and measles	77	124	47	61
" " scarlet fever	141	177	36	25
" " diphtheria	62	75	13	20
" " whooping-cough	166	199	33	19
" " fever	288	371	83	29
" " diarrhoea	256	295	39	15
Measles and scarlet fever	115	159	44	38
" " diphtheria	50	75	25	50
" " whooping-cough	184	211	27	15
" " fever	283	319	36	13
" " diarrhoea	208	295	87	41
Scarlet fever and diphtheria	93	118	25	26
" " whooping-cough	247	285	38	15
" " fever	425	495	70	16
" " diarrhoea	379	451	72	19
Diphtheria and whooping-cough	108	140	32	29
" " fever	186	226	40	21
" " diarrhoea	167	202	35	20
Whooping-cough and fever	499	587	88	17
" " diarrhoea	447	522	75	16
Fever and diarrhoea	770	1004	234	30

And now let us examine this table a little more closely, and see if there are any conclusions we are entitled to draw from it; and the first thing that strikes one is that *in every case there is a considerable excess over the estimated number of concurrences*—in no case less than 15 per cent. In the second place, we notice that *measles seems to have an especial tendency to concur with each of the other diseases*, the six largest percentages of excess being the six into which measles enters. There are also other points of in-

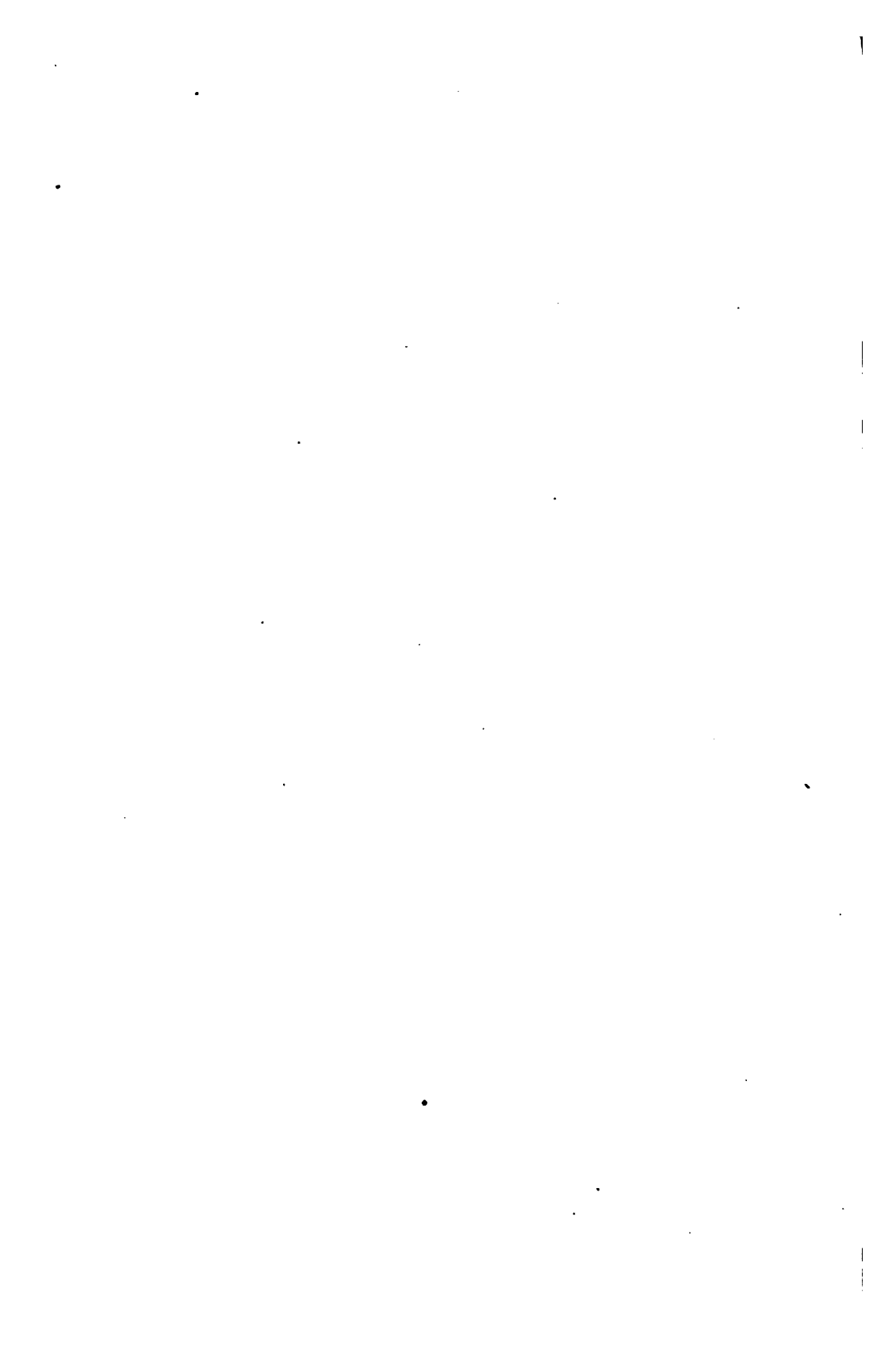
terest in this table, the actual number of concurrences in several cases very decidedly exceeding their estimated frequency; but I refrain from drawing attention to them, and am content to wait, and, by patiently working-out larger masses of figures, and by making a more extensive series of observations, to confirm or refute the conclusions I have drawn. Perhaps, when I have made the basis of observation sufficiently wide to neutralise or render inappreciable the influence of accidental disturbing conditions, I may be able not only to do this, but also to establish others but dimly foreshadowed in these tables. In the mean while, it is satisfactory to note that these conclusions are precisely those at which Dr. Buchanan arrived, though his calculations were made from one Quarterly Return only (No. 92), and his method of investigation differed somewhat considerably from that I followed.

The only other table I shall trouble you with will be one showing the number of times each disease occurred singly (*i.e.* not concurrently with any of the others), and the percentage these single occurrences bear to the total number of occurrences of the same disease; and by this again it will be seen that measles has the least tendency of any to occur singly, or, in other words, has the greatest tendency to be developed concurrently with one or other of these diseases.

Disease.	Single occurrences.	Total occurrences.	Percentage of single to total occurrences.
Measles	89	612	14
Smallpox	140	754	18
Diphtheria	97	492	19
Scarlet fever	248	1122	22
Whooping-cough	293	1315	22
Diarrhoea	501	2032	24
Fever	588	2268	25

And now let us glance at the direction in which we may look to find an explanation for these probable conclusions, which, though requiring further verification before they are accepted as facts, yet seem to have some considerable value as approximations to truth. Is it not probable that we may find, in the sanitary conditions, in

the filth and squalor of many of the dwellings of our poor, in the overcrowding of our small towns, and in such-like circumstances, those conditions which favour alike all these diseases, and make them tend to arise, or at least to prove fatal, concurrently rather than singly? And is it that the poison of measles is peculiarly liable to be intensified, and to prove fatal in such circumstances, that gives it its character of associating itself with the other members of the Registrar-General's zymotic class? These questions must be reserved for further investigation. And I will only say, in conclusion, that I have endeavoured in this paper to condense the results of a considerable amount of labour into a very few pages; that I have purposely, to save confusion, omitted the decimals to which I have worked the figures; and that if, by the courtesy of the Editors, I am allowed space in a succeeding volume, I shall hope to be able to present a far more complete series of observations.



VIII. CASES OF PSORIASIS.

By C. HANDFIELD JONES, M.D. CANTAB. F.R.S.

I. *Psoriasis associated with gout cured by Carlsbad water, after arsenic, K. Br., lithia, salines, and colchicum had failed.*

Mr. S., æt. 45, m. m.; seen January 18th, 1868. Of large make. His father had gout badly, but no psoriasis; all his relations have gout, and so he has himself. He has stopped attacks of gout by cold applications to the feet. His wife tells me that he was in much better health when he had the gouty attacks, which occurred twice a year for twelve or thirteen years; he used then to have some, but much less, psoriasis. At present he is decidedly hypochondriacal. The psoriasis is now very extensive and highly developed, especially about the knees and elbows; there is considerable desquamation. The eruption has existed on the elbows and knees for sixteen or seventeen years. The eruption has been much worse since last September; he seems to consider the cause of this was that he drank a quantity of cold water while very hot in July. Has had clap two or three times, but no syphilis. Takes a great deal of salt with his food. I ordered him magnes. sulphat. gr. xv.; sodæ sulphat. gr. xv.; liq. taraxaci, ʒj.; p. calumb, ʒx.; aq. ʒj.; *t.d.* Bismuthi trisnitrat. gr. 30; zinci oxydi, ʒj.; ungt. cetacei, ʒjss. m. fiat ungt. and a wet pack daily. 30th. Patches of less bright red, more covered with scales; health good; has used the pack steadily. Potass. chloratis, gr. x.; inf. artemisiæ vulg. ʒjss.; *ter die*. Mist. albæ, ʒj.; *o.m.*

Oct. 9th. Says the packs brought on an attack of gout. Health good. Appetite very hearty. Bowels open. Pulse 80, normal. Tongue quite clean. The last two months, during very hot weather, the eruption, which had got better, broke out worse again. He had got very hot one evening in walking, and very soon after the disorder came on again. At present there are large patches on the elbows and knees and back; these are very red, and covered with thin lamellæ; but the smaller and more recent ones are quite tubercular, much more elevated than the larger patches. Liq. potass. arsenitis, ʒv.; aq. ʒss.; *ter die*. Ol. cadini *p. affect.* Magnesiæ ustæ, ʒss.; magnes. sulph. ʒjss.; vini colch. ʒxv.; aq. m. pip. ʒjss.; *semel die*. Urine on 14th found very acid, not albuminous; sp. gr. 1022; deposited a good deal of crystalline uric acid, quantity fair. On 23d, as the bowels were acting three or four times a day, the colchicum and saline was discontinued, and K. Br. gr. x.; pot. citrat. gr. 40; aq. ʒj. *ter die*, was ordered. There was no improvement; the patches were of deep red, and itched much both night and day. Oct. 30th. Diseased skin much paler, itching very much; small cracks

are seen in some places; the elevated spots have subsided very much, but rather spread.

Nov. 13th. Can't sleep at night; his skin feels tight to him, and he has exceeding itching when he is warm in bed. The skin of the affected parts is of a much lighter red, and presents very marked elevations something like syphilitic tubercles. There is marked improvement, especially in the hands and forehead. To omit the arsenic, and increase the dose of K. Br. to gr. 30 *ter die*. To leave off taking salt.

Dec. 9th. His wife says that during the last month he has walked as if he were tipsy; his legs fail him; his memory is very defective, though it used to be very good; he is moody, and keeps to himself; he is rather deaf, and his sight is rather weak. When he gets into business, he can do it well. The eruption is not so copious; exhibits more separate but clustered spots. Pulse of good force. The backs of the hands were free from eruption last week, but now are covered with spots again. Has felt very chilly lately, though everybody else has thought the weather very mild. Ordered six leeches to each arm, and liq. potass. arsenit. ℥v.; vin. colch. ℥vij.; aq. 3ss. *ter die*, and gelatine baths. 22d. Pulse quick, 102; soft. Little or no good from leeches. Does not sleep now, but does not stumble about as he did. Feels very low; has no spirit to do anything. On the legs there are a good many patches, which are quite elevated, and almost like syphilitic tubercles; about the knees there is on each a broad arcuate band or row of the same. Potass. citratis, ʒjss.; lithiæ citratis, ʒj.; aq. 3vij.; metsolve capiet, ʒj.; *ter die*.

Jan. 1st, 1869. Arms greatly better; the skin paler and much less swollen; the patch on the back is also less deep red, and less swelled; the knees are in about the same state. Cold-water dressing has been kept on the parts except the knees. Head is still rather giddy. Sleeps fairly with extr. hyoscy. gr. v. *o.m.*

Feb. 6th. On both arms the patches are extensively red, but the skin has lost its thickening; and the same is the case whenever the water dressing has been applied. Elsewhere the spots remain much thickened, hard, and dry; the skin is generally dry. Itching less. Tongue clean. Appetite very good. Some giddiness lately. Carlsbad Sprudel water, oss. *o.m.*

June 23d. Has been taking the water regularly ever since—a glass every morning; it agrees with him very well, and the eruption has almost quite disappeared. His wife tells me he has only one small spot on one elbow, and another on one ankle.

Aug. 11th. Continues quite well.

The patient in this instance possessed in a very high degree the gouty tendency which had been active in his father, and formerly in himself, and prevailed in all the family. The psoriasis might have been a mere coincidence, but that it really was of gouty character itself seems to be proved by the fact that to a great extent, if

not entirely, it replaced the gouty attacks he used to have, and also by the success of a remedy of proved efficacy in chronic gout. The parietic effects produced by the K. Br. were very remarkable.

II. *Psoriasis induced by suckling.*

M. A. D., f. m., æt. 37; ad. Sept. 17th, 1868. Has suffered on and off two years with psoriasis, which has occurred only after the birth of her two last children. It comes out when she has been suckling five or six weeks; the first time she had it all over her. It goes almost quite away when she leaves off nursing. She can nurse pretty well. Her health is good. Has now extensive patches of psoriasis on arms and legs, affecting the extension side, and the angles of knees and elbows. The patches are larger on arms than on legs; there is scarce any eruption on the body. No gout in family. The treatment consisted of huile de cade locally, and liq. pot. arsen. internally; but no material improvement was obtained by May 20th, 1869, when she was last seen. The nursing was not discontinued till the end of April.

Remarks. It may be surmised that lactation in instances of this kind deprives the blood of some ingredient (perhaps fatty matter) essential to the due nutrition of the vasal nerves of the skin, in consequence of which hyperæmia and excessive cell-growth take place both in the tissue of the corium and on its free surface. This was, however, not the essential cause of the disorder, but only of its aggravation, since it did not entirely disappear in the intervals of swelling. There must have been some prior and more persistent cause.

III. *Psoriasis resisting carbolic acid and bichloride of mercury cured by minute doses of antimony.*

E. G., æt. 13, f. servant; ad. March 2d, 1871. Has been suffering with psoriasis more than six months; the legs, thighs, arms, and back present very marked patches. Catamenia have not yet appeared. Her grandfather had something of the kind; her parents were free. Acidi carbolic, gr. j.; glycerini, ℥x.; aq. ʒss.; *ter die*. 9th. Is worse; much itching; fresh spots of eruption have appeared. Bowels open. Appetite bad. Pt. mist. acidi carbolic, ℥ij. 16th. Is worse; there is much eruption on the back, consisting of notably elevated spots, solid, covered with scales. The spots on this part are very small, smaller than those of ps. guttata usually are. On both knees there are larger patches of common psoriasis. The itching is 'shocking.' Head aches. Tongue pretty clean. Pulse feeble. Hydr. bichl. gr. ʒ; liq. opii sed. ℥ij.; spt. chlorof. ℥v.; aq. distill. ʒss.; *ter die*. Ungt. zinci, ʒj.; plumbi subcarb. ʒj. fiat ungt. 30th. Itching fearful; psoriasis much the same;

pulse weak. Skin cool. Ant. pot. tart. gr. $\frac{1}{2}$; inf. calumb, mx .; aq. $\text{\text{zss}}$.; *ter die*. Pt. ungt.

April 13th. Less itching; some sickness. Pt. 3ij. *ter die*. 27th. Great deal of flushing of face and body; is still sick. Pt. mist. 3j. *ter die*.

May 4th. Her face has been extremely flushed, quite red, just as if she had been running on a very hot day. The antimonial even in 3j. doses has caused vomiting. Bowels not relaxed. The skin is very much better, the patches greatly paler. Pulse quiet; soft. Ant. pot. tart. gr. $\frac{1}{4}$; aq. 3ij.; *ter die*. Rept. ungt. 18th. Has got on 'beautifully'; her skin is almost perfectly natural. Much nausea still.

This patient was remarkably sensitive to even minute doses of antimony, which certainly had a powerful influence over her psoriasis.

IV. *Psoriasis cured by pot. iod. with cod oil, after mercurials, phosphorus, and pot. sulphuretum had failed.*

G. W., æt. 12, son of policeman; ad. April 22d, 1873. Ill three weeks, with spots of psoriasis on legs, arms, back, and face. The spots are red, scale-covered, and scattered. Health fair. Calomel, gr. $\frac{1}{2}$; opii, gr. $\frac{1}{8}$, *bis die*, after first week, with ungt. hydr. ammon. chl. dil. as a local application, was given for fourteen days; during the last week only one pill was taken per diem. No good effect. He then had with the ointment phosphori, gr. $\frac{1}{4}$ in pil., *ter die*. By June 10th he was materially better; was directed to use, besides the pills and ointment, a sulphuret-of-potassium bath. On the 24th it is noted that the patches were getting well in the middle; only the narrow margin was raised and red. On July 15th the eruption was more copious; there were a good many spots on the arms, some on the face. Those on the arms exhibit quite an annular arrangement, the enclosing line not being continuous, but made up of well-marked elevations, quite like syphilitic tubercles. Health good. Potassii iodidi, gr. ij.; tr. cinchon. 3ss.; Inf. cascarrill. 3ss.; *ter die*. Ol. morrh. 3ij. *semel die*. Ungt. zinci. Sept. 9th. Doing well; the spots are numerous, but small, and the scales are thin.

Oct. 14th. The skin was very nearly quite free. Oct. 28th. Discharged well.

Here it is to be noted, that the psoriasis during its later period presented a marked resemblance to a syphilide, and was cured, after other remedies had failed, by potass. iod. Yet certainly it was not an acquired secondary symptom, if it had any relation to syphilis at all. The question remains—which I cannot solve—whether the eruption was dependent in any measure on hereditary taint.

V. *Psoriasis of twenty years' standing, associated with bronchitis and ascites. Great improvement produced by large doses of arsenic and the local use of white precipitate.*

W. F., æt. 55, coachman; ad. April 28th, 1866. Has had the same eruption several times; the first was twenty years ago, but it was then nothing like so severe as now. It has not occurred every year; for two years he was quite free. He has been married thirty years; his wife and children are quite healthy. His youngest child is thirteen years old. Parents not gouty. He perspires very readily when at work. His whole trunk and limbs are covered over with large and diffuse patches of well-marked psoriasis. Abdomen very large; probably contains fluid. Urine full-coloured; sp. gr. 1022; not albuminous. Dry sounds heard throughout both lungs. Temp. 99°. Pulse 87; regular. He remained in the hospital till July 10th; his skin was then perfectly smooth and normal to the touch, but exhibited many patches where it was more or less congested and discoloured. The bronchitis was less, and so was the ascites. He had used as local applications sulphur-fume baths, bismuth, chalk, tar, white precipitate, and sulphur ointments. The mercurial quickly produced ptyalism, but exerted more effect on the eruption than the other applications. The principal internal remedy employed was liq. pot. arsen., which he took up to June 20th in doses increased up to ℥ij. or ℥xv. *ter die*. After this he took pot. iod. gr. iv. in mist. pot. citrat. ʒj. *ter die*, until Aug. 8th, when he was last seen. The patches of discoloured skin had then become notably paler, but both legs were superficially inflamed and ulcerated.

Remarks. In this instance the general health was in a very unsatisfactory state. The man appeared bloated and plethoric, and his liver was probably contracted. The bronchitis appeared to be a disorder of the internal tegument closely allied to that of the external. Arsenic in full doses, and white precipitate locally, proved themselves efficient remedies.

VI. *Psoriasis recurring at spring and fall during five years benefited by calomel-vapour bath.*

E. T., æt. 22, servant; ad. March 12th, 1868. Has an eruption consisting of largish and small papules, and of spots or patches, red, slightly elevated, and covered with white and glistening scales. In many places some of the spots have coalesced more or less completely into patches of various size. The whole trunk is covered, and the arms, and the legs to some extent. The affected skin is perfectly dry. There is no special affection of the knees and elbows; the former especially are almost quite free. The eruption on the forehead is very coppery; the scalp is affected also. Very much itching occurred at night, which increased and became worse six weeks later. The face always got well before the other parts. The eruption had appeared every spring for the last five years, and had occurred in the autumn too; so that she was seldom free

for more than about three months. Pulse 90. Temp. 98° 6'. Her health had been very poor a month before I first saw her, but she had now become much stronger. No sign of ulceration of throat, of iritis, or of enlarged posterior cervical glands. Bichloride and iodide of mercury with ol. morrh. were employed until the end of April, with an ointment of bismuth and white precipitate; but, except that the face improved, not much ground was gained. Calomel-vapour bath *o.n.* and pitch pills brought further improvement, and by July 15th only a few red spots about the shoulders were left. The pitch pills were replaced by nitromuriatic acid, liq. pot. arsen., and decoction of burdock successively; but I think the calomel was the only medication which had any real efficacy. It was administered from May 1st to July 1st *o.n.*, and afterwards *alt. noct.* No pyalism was produced.

Remarks. The tolerance of the mercurials in this case is noteworthy, as well as the improvement produced. It is not to be denied, however, that the time of the year when she improved was that in which spontaneous subsidence of the disorder might be looked for.

VII. *Psoriasis of seventeen years' duration, attended by chronic gastrointestinal catarrh, markedly benefited by phosphorus.*

M. B., æt. 25; ad. March 29th, 1867. Had same skin eruption eight years ago, and was then under my care. It commenced two years before. Has lately been treated by another physician, who gave her liq. potass. arsenit. internally, and calomel ointment locally. She is now salivated. Her father had something of the same kind. Has never felt quite well as long as she has had the disease; has always felt so very weak. The eruption on May 18th consisted of numerous red spots on the two arms, the legs below the knees, and the face; they were most developed on the knees and elbows. June 10th. The psoriasis was *in statu quo*; on the face it presented irregular macular patches of varying size. One spot on the legs was notably raised in the centre, tuberculoid, and coppery in colour. I suspected the disease might be of syphilitic character. Since then to the present time, 1874, she has been frequently attending as *o.p.* under my care, having always more or less psoriasis, and also very marked disorder of the alimentary canal. Her tongue is commonly white; she has pain after food in the abdomen, and at times some diarrhoea. I have often made the remark that both her cutaneous and her mucous tegument were in a similar state of chronic hyperæmia and irritation, and that hers was the only case of psoriasis where I remembered to have seen this. In April 1871 she became an in-patient a second time, and I put her for a time on a diet of milk, bread, and fish, with watercresses; but no improvement was obtained. Nor was she better with an ordinary mixed diet and three lemons a day. It would be utterly tedious to detail the manifold remedies employed during the seven years elapsed since 1867. Besides many given by the mouth, she had twice a trial of the sulphur-fume bath, but not, I believe, of the sulphuret of

potassium. The only drug which has appeared to be of notable efficacy has been phosphorus in pills of $\frac{1}{16}$ gr. *ter die*. These she continued to take more or less regularly up to the present year, 1874; and, what has rather surprised me, they do not derange her very touchy stomach and intestines. I once tried her with artificial Harrogate water, but it made her so sick she could not take it.

Remarks. The frequent recurrence of this eruption during so many years makes it very improbable that it was of syphilitic character. No other syphilitic symptoms presented themselves; and, in fact, almost the only circumstance that at all pointed in this direction was the good effect of mercury, which unfortunately was marred by the salivation. Nothing was made out throwing any light on the cause of the skin disease.

VIII. *Psoriasis presenting appearances suggestive of a syphilitic origin; marks of previous inflammation of eyes; failure of mercury and antimony; cure by arsenic and sulphur fumes.*

E. P., æt. 4; ad. Sept. 15th, 1871. Has an extensive eruption of psoriasis, affecting his trunk both in front and behind, and also his limbs and scalp. The most noteworthy point is, that on the back and legs many of the patches or spots are much raised, so as to resemble very markedly syphilitic tubercles. On the right cornea, at inner and lower part, there is a well-marked opacity. In the left pupil there is a web or flake of lymph. The knees and elbows are not specially affected by the eruption. Health fairly good. *Hydro. cretâ*, gr. jss.; *pulv. Doveri*, gr. j., *bis die*, was given for seventeen days, but produced no decided improvement. *Ant. pot. tart.* was then tried in doses from gr. $\frac{1}{8}$ to gr. $\frac{1}{4}$ for fourteen days, but without avail. Oct. 16th he was ordered *liq. pot. arsenit. Mij. ter die*, and the sulphur-fume bath. By Nov. 2d the eruption was reduced to mere stains, forming numerous well-marked rings on the lower back, while in the upper the stains were hardly visible; the transition between the two was very gradual. Some patches have left continuous non-anular stains. After a month's stay at a convalescent asylum the stains had in great measure disappeared; but one minute spot of fresh eruption had appeared on the mid-back. He was readmitted fifteen and a half months later with signs of intestinal and pulmonary tuberculosis, which soon ended his life. There had been no recurrence, I believe, of psoriasis.

Remarks. Here the eruption closely resembled a tubercular syphilide. It did not, I am pretty sure, recur. It was attended by some positive traces of bypast eye inflammation; but nevertheless it resisted mercury, and yielded to arsenic and sulphur fume. Was it syphilitic? I think so; and if so, it must have been congenital.

IX. Psoriasis, after being lessened by arsenic, presenting appearances suggestive of syphilis, and removed by hydr. iodid. with pot. iod.

Ch. N., æt. 15, f. s.; ad. March 11th, 1867. Had same eruption last spring; it has returned the last two months. There are well-marked patches of psoriasis on both arms and legs—not actually on, but near the elbows and knees. The patches are circular or oval; the skin is red, elevated, perhaps most at margins, and covered with scales. Ascribes her eruption to drinking cold water when hot; but it appears that it did not come out till three or four months after. Her health is blooming; she looks a fine handsome girl. No gout in family; no others affected as she is out of a number of seven. After a short trial of lithia, copaiba was given both internally and externally, but accomplished nothing by April 15th. She then took liq. pot. arsenit. *℥v. t.d.*, and used liq. carbonis detergens in a lotion, which was replaced on 29th by ungt. hydr. ammon. chl. dil. May 13th. The skin in the middle of the patches has become natural, with the exception of being congested; the margins of the patches are formed by ridge-like rows of elevations. 27th. Eruption much reduced, does not itch at all now, but presents both on legs and arms rounder irregular areas, included by rows of tubercular elevations suggestive of a specific origin. Pt. ungt. Hydr. bichloridi, gr. $\frac{1}{4}$; potass. iod. gr. v.; tr. opii, *℥ij.*; aq. dist. *℥j.*; *ter die*. June 17th. Is improving; the ridges of eruption are resolving into isolated spots. She continued to improve steadily, and by Aug. 12th was nearly well.

Remarks. This eruption, in spite of its resemblance at one period to a syphilide, and its being notably lessened by hydr. iod. with pot. iod., was doubtless non-specific. The flourishing state of the health, the occurrence of the eruption the previous spring, and the absence of any other syphilitic lesion, are strong grounds in favour of the view taken, though one could hardly avoid entertaining the other for a while.

X. Common psoriasis cured by arsenic and sulphur-fume bath.

Mr. M., æt. 22; seen Oct. 10th, 1871. Suffering with psoriasis six years; it is now very extensive, affecting the trunk, arms, and legs—the arms are more affected than the legs. His father had skin eruption while in India, but of a different kind. He has not been in the tropics; his general health has been much enfeebled of late, and he has been taking during some weeks strychnia and phosphate of iron with much benefit. Sulphur-fume baths were advised, which were supplemented on 24th with liq. pot. arsenit. *℥iv. ter die c. cibis*. The sulphur baths were omitted from Dec. 14th to Jan. 14th, when, as some fresh eruption was appearing, the arsenic was omitted, and the baths resumed four times a week. On Feb. 5th, ol. morrh. *℥ij. in dies* was added. March 6th. The skin was almost clear, a few scaly spots and some faint stains alone remaining. April 6th. He mentioned that he had passed lately two

small calculi—had passed a third some time previously. There were a few spots of eruption still. I have not seen him since. One or two points he mentioned respecting the action of the baths were curious. They made his hands and feet black, but no other part. Also he noticed that he slept much better the nights that he had the baths. On these he slept quietly the whole night long; but on other nights he awoke two or three times. It may also be noted that he perspired normally while taking exercise.

Remarks. The psoriasis in this case coincided with great impairment of the health; and this is often the case, at any rate in London. Exceptions, indeed, are not unfrequent; but English experience does not, I think, coincide with Hebra's, who asserts that all his patients, without exception, have been blooming healthy individuals. What the blackening of the hands and feet in the bath depended on it is hard to say. It cannot have been due to the formation of sulphuret of lead, as there was no likelihood of lead being present at all; and had any existed in the system, and been evacuated by the perspiration, the axillæ and other regions would have been more affected than the hands and feet. The hypnotic effect of the baths shows that they acted on the nervous system, of course through the sensory nerves. They probably cured the psoriasis by reflex stimulation of the vaso-motor nerve.

XI. *Common psoriasis cured by sulphuret-of-potassium bath.*

S. C., æt. 58, laundress; ad. May 16th, 1873. Married, with thirteen children, seven living; last child born fourteen years ago. Health generally good. Parents dead. Had seven brothers and two sisters; no mention of their being affected as she is. Her present skin disease came on about four months ago; she fancies she took it from a woman she employed to wash for her. It appeared first on the legs, and then spread all over her. The legs are now extensively affected, more so than other parts; large surfaces of the thighs and legs are of a deep red, slightly raised, and more or less covered with scales. There are separate red guttate spots here and there. On the left side of abdomen there is a group of annular patches of florin size or larger, which have red margins and pale centres. The leg patches and some others present markedly arcuate borders. On the arms there are maculæ, red patches irregularly shaped and without scales; the elbows and knees are by no means specially affected. Near the axillæ the appearance of the skin is very much that of chronic eczema. The eruption causes much irritation and makes her faint. Has been very bilious, and is subject to cough and diarrhœa; her eyes are bloodshot, and sometimes discharge; has taken to drinking last twelve months; has occasional hallucinations,

and is delirious to some extent; was so last night; is said to have been like a mad woman lately. Urine very high-coloured, not albuminous. Her delirium was quieted by chloral, and her appetite and general health improved by quinine; but the psoriasis on May 26th was in the same state. It was especially noted that the small separate spots were flat, and not raised like tubercles. She was now ordered the sulphuret-of-potassium bath every other night, which produced such rapid improvement that the skin had become almost normal by June 2d, except stains left on the legs. She was discharged on the 14th. On 23d the stains persisted, but there was no eruption.

There can be no question of the very great efficacy of the bath in this instance; the cure was rapid.

XII. *Psoriasis, very extensive and copious, benefited by sulphur baths; cured for the time by mercurials.*

B. C., æt. 57; ad. Dec. 23d, 1873; a wood-enameller, uses white lead, but has no blue line, and does not seem to have suffered any toxic effects. He had a very copious eruption of psoriasis all over him, worst on the outer part of the thighs, consisting of patches of varying size, some very large. Many, especially on the abdomen, presented a marked annular arrangement; others on the limbs were bounded by serpentine or arcuate lines or ridges. The enclosed areas of skin were recovering. The outer parts of the patches were covered with a most abundant development of whitish scales, so that one could hardly avoid recalling the old idea of leprosy. The skin in the intervals of the patches was very much discoloured, stained brownish yellow; the appearance much resembled very dark freckles. He had often had the same eruption before, but not so badly. Health very good. Syphilis denied, nor was there any appearance of it. He was treated with phosphorus, gr. $\frac{1}{2}$ in pil. *quater die*, and sulphuret-of-potassium or sulphur-fume baths; and by Jan. 19th the eruption was much reduced, and the production of scales very much lessened. The ridges marking out the areas were in several parts much raised, and fell firm; they strikingly resembled an arcuate syphilide. He was now ordered calomel-vapour bath *alt. noct.*, and to rub in some mercurial ointment on the intervening nights, the change being made because he did not seem to be continuing to improve. Considerable improvement was effected by the mercurials by Feb. 4th, though their employment had to be suspended on account of pytalism having been induced after five days' use. He was then ordered to take pil. Plummeri, gr. v. *o.n.*, to which was joined, twelve days later, ungt. hydr. ammon. chl. dil. to the affected parts. Under this treatment almost every trace of psoriasis—except the pigment spots—disappeared, and he went out Feb. 27th.

The resemblance of the eruption in this instance to a syphilide, especially on the limbs, was very considerable. Moreover, it was cured by mercury. Yet, as it had recurred for a long time, and was not attended with other traces of syphilis, it probably was of a simple kind. The

good effect of gentle mercurial action, continued some time, was very marked.

Points which come out on a general review of these twelve cases are the following:

1. The eruption of psoriasis may present at certain times a very considerable resemblance to a tubercular syphilide with arcuate arrangement, and this in cases where no other symptom of syphilis exists, or has existed, and where contamination in the ordinary way seems impossible. This resemblance is a significant feature, but cannot be admitted to prove identity, not even when its evidence is corroborated by the beneficial effect of mercury. The explanation may be this: that the eruptions in both disorders are due to the presence of a 'materies morbi,' probably of albuminoid nature, and that these being similar, though not identical, work in a like way, and are similarly affected by the same agent.

2. It seems clear that the etiology of psoriasis is not uniformly the same. This is generally admitted as respects the determining cause, but a peculiar predisposition is held to be necessary to the effect. Something of this kind, I suppose, must exist, as the effect on the skin produced by a special cause, as gout, may be different in different individuals: thus we have gouty eczema, or gouty psoriasis. Still we must admit that the determining causes, which are the only ones we can lay hold on, merit our closest study, and that it is quite possible they may vary so much as to make the disorder clinically a different one in different cases.

3. Closely connected with the above is the great diversity subsisting between different cases of psoriasis, apparently quite similar, as to their amenability to remedies. Some yield to one remedy—some to another; some seem refractory to all. Certainly there must be some difference in the morbid process in different cases to account for this uncertainty of therapeutic action. This difference depends partly on varying degrees of excitability in the skin, which is sometimes intolerant of any approach to stimulation; sometimes bears stimulating remedies freely. The ex-

citability is usually greater in the early period of the eruption than in the late, but many cases are hyperexcitable throughout. Dr. Passavant, cured after twenty-five years' suffering by an exclusively animal diet, had probably a less irritable tegument than Dr. Caspari, who, after thirty years' endurance, got well on milk and farinaceous diet. Another cause of uncertainty in the action of remedies may be that one of the factors of the eruption may be replaced by another, which acts similarly in the morbid process, but behaves differently towards remedies.

4. As the earliest condition of a psoriatic patch is a red inflamed spot, in the middle of which, as it enlarges, a scaly disc is produced, it seems plain enough that psoriasis is essentially an inflammation, and that the object of therapy is to cure or prevent this inflammation, which being done the formation of scales will cease of itself. It is also plain that this inflammation is dependent on some internal cause which continually generates fresh spots and patches. It seems therefore, *a priori*, not a very hopeful endeavour to attack the existing patches of inflammation by mere local remedies; and clinical experience has certainly not tended to modify, so far as my own observation extends, this opinion. To lay much stress on removing the scales seems to me quite needless, as they fall off spontaneously with great readiness; and when they are removed, either naturally or artificially, the bare red skin is just as far as ever from recovery. As the foregoing cases show, I do not doubt the value of sulphur baths; but I do not rank them as mere local applications, since they powerfully affect, through the sensory nerves, the whole system.

5. Hereditary tendency was inquired into in only five of the cases. In two the father was stated to have had skin disease; in one, the grandfather; in one, no others of the family; in one, all the relatives had gout, but no psoriasis.

6. In considering the pathology of psoriasis, it seems worth remarking that it stands quite apart from most other typical skin disorders, and seems to be of a different nature. Take the eruptions characterised by sero-puru-

lent discharge—eczema, impetigo, pemphigus, rupia, herpes—here the defect seems to be essentially vasal nerve paresis, and consequent hyperæmia and loss of capillary retentivity. In purpura this latter quality is still further deteriorated, and actual escape of blood results. In roseola and erythema, on the other hand, there is no such defect: the capillary plexus is merely distended with blood from arterial relaxation. These disorders present us, then, varying degrees of vasal nerve paresis. In lichen and prurigo the characteristic feature is hyperæsthesia of the sensory nerves, and vasal nerve disorder is quite secondary and subordinate. In ecthyma, furuncle, and carbuncle the essential feature is derangement of the nutritive life of the corium or the subcutaneous tissue, their corpuscles proliferating into heterologous pus-cells. In ichthyosis there is congenital malformation of epidermis: the disorder is evidently a systemic vice. In pityriasis, as Dr. T. Fox says, ‘the nature of the disease is an excess in the cell formation of the cuticle;’ and this may be attended, I suppose, with more or less hyperæmia, though the latter is a subordinate feature. Now this is evidently the morbid state with which psoriasis has most affinity. The chief difference between the two disorders consists in the one being less diffuse than the other, and being attended with more hyperæmia. Both are essentially inflammatory hyperplasias of epidermic tissue. Their *raison d’être*, like that of ichthyosis, lies far deeper, I suspect, than that of the other diseases we have glanced at. They come from transitory derangements of the action of vessels, nerves, or tissue elements; but the squamous disorders seem to imply a more persistent deviation, or tendency to deviate, from normal modes of life. In such states we may conceive the action of remedies in obtaining a temporary cure to resemble that of certain chemical agents, which, when added to a solution, prevent a change taking place that would otherwise have ensued. Thus a solution of phosphate of soda acidified with nitric acid remains apparently unchanged when argentic nitrate is added; but if the nitric acid were not present, a precipitate of argentic phosphate would necessarily occur. In

like manner, a drug, as mercury, introduced into the blood may so affect either the cutaneous tissue or some ingredient of the blood, that the morbid reaction between them does not take place.

Lastly, we may surely affirm, that in a good many instances treatment does really accomplish a great deal. Not that it radically cures the morbid diathesis which underlies the manifestations of eruption, but that it so counterworks it as to suppress its outward signs, and so affords the patient great relief. This is very much the same result as we attain in other constitutional maladies—in the neuroses, phthisis, gout; in fact in all where the cause of the disorder is not an 'insultus ab externo,' but an internal infirmity or faulty working. The physician is like the man rowing against the stream—'si brachia forte remissit, atque illum in præceps pronò rapit alveus amni.' Yet by steady perseverance he often makes good headway. Only he must well remember that the same means will not avail, or equally avail, in every case—a caution not, I think, needless when some seem inclined to deny any efficacy to remedies unless they are positively efficacious in almost every instance.

IX. EXOPHTHALMIC GOITRE.

By W. B. CHEADLE, M.D. CANTAB.

IN the fourth volume of these *Reports* (1869) I published an account of seven well-marked cases of exophthalmic goitre, with the addition of two others of less pronounced and certain character. I endeavoured to show that the disease is not dependent on mere anæmia, but a neurosis in which the sympathetic system is largely implicated, although not necessarily primarily or solely involved. Lesions of the cervical sympathetic, which have been observed in the post-mortem examination of several cases, are not alone sufficient to explain all the phenomena observed, such as the general rise of temperature, the general sweating, and the diarrhoea, which are such constant symptoms. And further, some of the symptoms are indicative of excitement and exalted function; others, of paralysis of the gangliated cord; so that it seems clear that there must be something more at the root of this series of nervous phenomena than simple disease of the cervical sympathetic — possibly, as Dr. Laycock has suggested, an affection of the so-called cilio-spinal region of the spinal cord. Much light has already been thrown upon the subject, but further evidence is needed before a positive conclusion can be formed as to the exact pathology of this curious affection. Since the publication of the paper on this subject in 1869 I have met with six more cases of undoubted exophthalmic goitre, and one of enlarged thyroid, which it seems probable was connected with a similar nervous condition. These examples exhibit much the same features and support the same conclusions as those previously recorded; yet one group of cases possesses fresh interest from the fact of their occurring in persons of the same family, viz. in a woman and her two nieces, the daughters of her sister; while another niece, her brother's child, has goitre probably exophthalmic in its nature.

CASE I. *Exophthalmic goitre in the active stage.* Martha F., æt. 44,
VOL. VII. G

unmarried. Eighteen months ago the catamenia ceased, and have not returned. Since then she has suffered from constant palpitation, sensation of heat, flushing of the face, profuse perspirations, and frequent diarrhoea; her neck has enlarged and her eyes have become very prominent. All these symptoms have come on since the cessation of the catamenia, and have gradually increased. She never had rheumatic fever. She says she has three nieces affected in the same way. When seen in February 1874, the eyes were so prominent as to show the sclerotic all round the iris; the thyroid enlarged into a firm symmetrical tumour measuring $2\frac{1}{2}$ inches across. The cervical glands on the left side were enlarged to the size of walnuts, forming a large prominent mass. No thrill could be felt in the tumour itself, but the pulsation of the carotids was extreme. The heart's action was intensely excited, rapid, and its pulsation powerful, and visible over the greater part of the chest. A loud harsh bruit was audible with the first sound; most intense just to the left of mid-sternum, at the fourth costal cartilage, and more audible towards the left shoulder than towards the right. The area of cardiac dulness not increased. The pulse was 120; the respirations 30 in the minute; the temperature of each axilla, 98.9° . The patient was not in the least anæmic. The rate of the pulse and respiration, and the temperature of each axilla, were taken regularly for many weeks. The pulse varied between 120 and 138, the respirations between 24 and 30. The temperature in the two axillæ was found always to correspond within $\frac{1}{2}$ of a degree, and was constantly just under 100° (99.8° or 99.9°) except on four occasions; once, when first examined, when it was made 98.9° , twice 99.5° , and once 100° . The treatment consisted in the application to the enlarged thyroid and cervical glands of a lotion of tincture of iodine and glycerine on lint covered with oiled silk; and, internally, the perchloride of iron. No improvement having followed at the end of six weeks, on the 14th April the infusion of digitalis was added to the iron in two-drachm doses, and continued until the 24th May, but without any good effect. Ten minims of tincture of iodine were then given in steel wine three times a day, the lotion being continued throughout. On June 1st, the patient for the first time appeared decidedly better, the palpitation being much less troublesome, and the pulse fuller and stronger. The dose of tincture of iodine was increased to fifteen minims. The rate of pulse and of respiration and the temperature have remained about the same, but the pulse has become steadier, fuller, and stronger, and the heart's action decidedly less violent and excited, and its impulse less sudden and jerking; the enlarged cervical glands have become smaller and softer, so that the whole neck is less tense, but there is no change in the thyroid itself. The improvement in general health, the abatement of dyspnoea and distress, have been striking, and continue to the present time, July 1874.*

CASE II. *Severe exophthalmic goitre in the active stage in the niece of the preceding.* Rosetta R., æt. 24, single, daughter of the preceding pa-

* Since the above was written, the condition of this patient has again undergone a great change. The enlargement of the thyroid has entirely disappeared, that of the cervical glands almost entirely, the former being

tient's sister. She first noticed troublesome palpitation about five years ago, when confined to bed for a long time by some affection which appears to have been hysterical. Her throat has been enlarging and her eyes prominent for the last twelve months, and she suffers constantly from a sense of heat, profuse perspirations, and frequent diarrhoea. She has lost flesh rapidly, and has become weak, and able only to walk a short distance. The catamenia ceased entirely nine months ago. When first examined in April 1872, all the symptoms of exophthalmic goitre were fully developed—the eyes protruding, the thyroid enlarged into a prominent pulsating tumour, and the heart's action extremely excited and violent, shaking the whole left chest. No bruit could be detected. The pulmonary sounds were normal, and the chest fully resonant with full expansion. The body was very thin; the mammae, which she states had been fairly developed, having almost entirely disappeared. She was not in the least anæmic or chlorotic. The pulse, 120; respirations 60 in the minute; temperature of each axilla, 100° . The condition of the uterus was examined by Dr. Meadows, who found the walls thin and cervix small; the uterus and ovaries being either wasted or not fully developed. Various drugs were given, including bromide of potassium, in doses of from 30 to 40 grains three times a day; iron and digitalis, succus conii, strychnia, quinine. None of them, however, appeared to have the least influence upon the disease, although tried fully for a length of time. The palpitation, heat, and sweating remained much as before; the pulse rate ranging from 120 to 130; the temperature from 99.2° to 99.5° , and equal on both sides the body. The diarrhoea, however, was greatly mitigated, and the general health somewhat improved, by quinine with sulphuric acid and opium; and at the beginning of July, by my advice, she went into the country. There she remained, taking no medicine, and having complete rest and holiday, for upwards of eighteen months, improving greatly in general health. The catamenia returned, and she menstruated regularly for the last twelve months. The palpitation was less severe, but never ceased. The eyes and throat, she thinks, diminished in size. At the end of this period, *i. e.* at the end of Nov. 1873, she felt so much better that she came back to town, and resumed her occupation as a shopwoman; but she quickly lost ground again; the catamenia ceased, and she came to me on Jan. 3, 1874, in very much the same condition as when I first saw her nearly two years before. The pulse was 140; respirations, 30; temperature, 99.4° ; and she was drenched with perspiration. Little alteration could be seen in the goitre or exophthalmos, and the heart's action was as violent as

now hardly to be made out at all by touch, and the latter so small as not to be visible. But with this have come extreme distressing palpitation, a rapid irregular feeble pulse of 130, and much sweating, diarrhoea, exhaustion, and incapacity for the least exertion. The temperature varies between 99.2° and 99.8° . The subsidence of the glandular swellings has proceeded with extraordinary rapidity during the last ten days. The iodine was continued without cessation until the middle of September (three weeks ago), when it was given up on going into the country, from which period the patient dates the supervention of her distressing symptoms. There are no signs suggestive of iodism beyond the great palpitation. Oct. 1874.

before, the palpitation being most distressing; while a harsh bruit was audible with the first sound at the base, most distinct and loud in the third left intercostal space. The patient complained of pain in the region of the sixth and seventh cervical vertebræ, which were unusually prominent and tender on pressure. On Jan. 12, she was admitted as an in-patient of St. Mary's Hospital, remaining under my care, by the kind permission of Dr. Sieveking. Iron, quinine, and digitalis were given, and an endeavour made to galvanise the cervical sympathetic by the application of the constant current. This caused the patient great distress. Before galvanism, the pulse was 120; respirations, 32; immediately after, the pulse was found to be 160 and the respirations 42. An hour and a half later the former had fallen to 120, the latter to 36. The same treatment was persisted in, galvanism being administered twice a week. Eventually the appetite improved, the pulse appeared fuller and stronger, the palpitation became less distressing, and the patient's general health improved in a sensible degree. The catamenia, however, did not return. The temperature continued to vary between 99°1' and 100°, the pulse from 112 to 140, and respirations from 32 to 36. After six weeks' residence in the hospital she again went into the country, to lead an open-air life with complete rest.

On July 17, five months after leaving the hospital, she came up to town to see me, and showed a remarkable change for the better in several respects. Instead of being extremely wasted and thin, she was plump, and the mammæ had developed to the normal size. The catamenia had appeared twice, but were scanty. She was much stronger, and could walk a considerable distance without distressing palpitation. This was, however, still troublesome, and the heart's action violent, with a harsh systolic bruit to the left of the upper sternum. The profuse perspirations and diarrhœa had greatly abated. The pulse was 148; respirations, 28; temp. 99°9'. The palpitation was said to have been increased by the excitement of the journey. There appeared to be no change in the prominence of the eyes or of the thyroid.

CASE III. *Exophthalmic goitre in stage of subsidence in sister of preceding, and niece of the patient in Case I.* Kate R., æt. 20, sister to Rosetta R., and niece of Martha F. About four years ago the catamenia, which had been regularly established, ceased; and she suffered from epistaxis regularly at the menstrual periods for about twelve months afterwards, when the catamenia returned. At this time she noticed that her eyes were becoming very prominent, and they grew much more so than her sister Rosetta's are now (which protrude so as to show the sclerotic all round the iris). Did not observe any enlargement of the throat. Had constant palpitation and profuse perspirations, with feeling of heat, but no diarrhœa. These symptoms have gradually subsided, although she still suffers from palpitation at times.

On examination, July 17, 1874, she was found to have marked exophthalmos, but not so extreme as her sister's, although at one time she said her eyes had been much worse. There was no enlargement of the thyroid. The heart's action was quiet, and there was no bruit. There was no increased pulsation of the carotids. Pulse, 84; respirations, 27; temp. each axilla, 98°8'. There is not a trace of anæmia.

CASE IV. *Enlarged thyroid, probably of exophthalmic nature, in cousin of preceding.* Martha Jane F., cousin to the two preceding, and niece to Martha F. of Case I. For the last two years she has suffered from palpitation, and during the last year the thyroid has enlarged. She has always lived in London.

The catamenia have not appeared, but regularly every month she has pain in the back and lower part of the body, which her mother regards as indicating the approach of menstruation; and at these times the throat is observed to become much more swollen. She is troubled by sense of heat sometimes, but not by perspirations or diarrhoea. When seen in April 1874 she was an ill-grown girl, with square prominent forehead, large joints, and other signs of old rickets; but the mammae were developed and full, though not very large. The thyroid was enlarged to a firm tumour, measuring $3\frac{1}{2}$ inches across. There is a very perceptible thrill to be felt in the tumour, and the carotids appear to pulsate more than natural. The heart's action is quiet, and the sounds clear, but louder than normal. Pulse quiet, 98; respiration, 18; temperature of each axilla, 98.5° .

Of this series of four cases in persons of close blood-relationship, the first three are undoubtedly cases of true exophthalmic goitre. The last is of a more uncertain nature; but the existence of thrill in the thyroïdal tumour the signs of impending menstruation, the increased heart sound, and carotid pulsation, support the view that the goitre was not simple in its nature, but a mild example of the neurotic form.

CASE V. *Active exophthalmic goitre.* Mary J., æt. 38, unmarried, Nov. 1871. This patient had rheumatic fever eighteen years ago, and has suffered from palpitation ever since. Shortly after rheumatic fever she had measles, and has suffered from catarrhs every winter since then. She first noticed her eyes growing prominent twelve or thirteen years ago, and thinks this came on gradually after the attack of acute rheumatism. Her throat enlarged before she noticed any change in her eyes. She has suffered much from sense of heat and copious perspirations, but not notably from diarrhoea. The catamenia have been scanty for the last three years, and irregular from time to time for a very long period, at one time ceasing altogether for thirteen months. She has also been troubled with leucorrhœa. She was not in the least anæmic. When examined on Nov. 15th, 1871, her eyes were very prominent; the pupils were sensitive and of normal size; the goitre moderate, the enlargement being confined almost entirely to the left lobe and the isthmus. The breasts were extremely wasted, having been always small. The pulsation of the carotids was very marked; each impulse of the heart could be felt over the whole front chest, with a strong thrill perceptible over the left half of the chest only. The rhythm of the heart was irregular, being interrupted occasionally by a small imperfect beat; a bruit was audible with the systole, loudest a little below and to the right of the nipple. Moist crepitation was heard in the second

left interspace, which was dull on percussion. Dr. Meadows was kind enough to examine the condition of the uterus, and reported that the cervix was small, its tissue somewhat indurated; the os transverse. The uterus was freely movable, feeling small to the finger, and measuring with the uterine sound only two inches. The left ovary could be felt on very deep pressure; the right not at all. The temperature of the axilla was from 99.4° to 99.8° ; under the tongue, 99.8° ; in the vagina, 100.4° . The pulse 96, and somewhat irregular.

The temperature of the different regions was repeatedly taken during the patient's stay in hospital, which lasted until Dec. 13th, the results being almost identical with those recorded. When she went out the pulmonary symptoms had greatly abated, the moist sounds having disappeared; harsh and deficient respiration, and dulness on percussion in the second left interspace being, however, still very noticeable. The temperature had declined in each axilla to 99° ; under tongue, 99.4° ; vagina, 99.6° . This patient was treated for the pulmonary symptoms only.

CASE VI. *Active exophthalmic goître*. Elizabeth C., æt. 17, April 3, 1874. Had been quite well in every respect until March 1873, the catamenia having been regularly established for nearly two years. Then a pony ran away with the gig in which a boy was driving her, and she was thrown out, getting some severe bruises; but she was not seriously hurt. She was, however, terribly frightened, and has been extremely nervous ever since, starting at the least thing. After the accident the catamenia ceased altogether for six months, and have been extremely irregular since their return. Soon after the accident she observed that her eyes were becoming prominent; then palpitation of the heart and throbbing of the throat came on, but the goître not till later. She suffers much from hot flushes, and perspires profusely always. She has not had rheumatic fever, and knows of no similar affection nor nervous disorder of any kind in any of her relations.

When examined, on April 3d, her face was much flushed, her lips red, no sign of anæmia, the exophthalmos great, the pulsation of the thyroid and carotids very marked. The goître was the size of a large hen's-egg, symmetrical, soft; no thrill could be perceived in it. The action of the heart was very rapid and violent, its pulsations being distinctly visible through the woman's dress. There was no evidence of hypertrophy. A loud bruit was audible with the systole at mid-sternum, louder to the left than to the right of it. The pulse was 136; respirations, 18; temperature of each axilla, 98.6° .

This patient remained but a short time in hospital, and was only examined on this one occasion.

CASE VII. *Exophthalmic goître in stage of recovery*. Emma P., æt. 31, single, March 1874. Has suffered from enlarged eyes and throat since 1864. Has not been troubled by any habitual palpitation when quiet; but on the least exertion the beating in her chest used to become so violent, that she had to stop and support it with her hand. The exertion of writing a letter even caused perspiration to pour down her right arm. Her face is always flushed and in constant perspirations. The catamenia have always been regular, but too profuse, and accompanied by vomiting and exhaustion. She attributes her illness to

mental suffering and anxiety on account of the birth of an illegitimate child, from which time she has been affected in this way. She never had rheumatic fever, and there is no similar affection in any of her family.

When examined, March 14th, 1874, there was well-marked but not extreme exophthalmos, and a goitre as large as a moderate-sized orange. It had been much larger at one time. There was no thrill perceptible in the tumour nor increase of pulsation in the carotids. The heart's action was quiet and the sounds clear, and there was no increase of impulse. The pulse was 84; the respirations, 18; the temperature of each axilla, 98°. The patient was slightly anæmic, but not chlorotic, and felt languid and weak. She had been almost constantly under medical treatment from the first. She improved steadily under iron and quinine, and is now well, with the exception of the slight disfigurement caused by the prominence of the eyes and the goitre.

In the former series of cases one of the most severe amongst them occurred in a young man of nineteen. In the present series all the patients were women. In all there was some disorder of menstruation. In four out of the seven cases the catamenia ceased altogether about the time the affection was first observed. In one the menstruation had not commenced, but there were signs of its approach: in one it had always been irregular from the onset of the disease, and had even ceased altogether for a period of thirteen months. In the remaining case menstruation was profuse, and invariably accompanied by vomiting and exhaustion. In all where menstruation was absent its return coincided with marked relief of the general symptoms. Whether the disorder of menstruation and the exophthalmic phenomena were in any degree connected otherwise than as common results of the same disturbed nervous state is uncertain; but the association is too frequent to be accidental or irrelevant.

In connection with this suppression or irregularity of the catamenia, so constantly observed in females suffering from this disease, it may be noted that in the two cases of active disease in which the uterus was examined it was found to be unusually small, and in one instance that organ and the ovaries were judged to be imperfectly developed. The return of menstruation, however, and the accompanying full enlargement of the previously shrunken and wasted mammæ, suggest a temporary atrophy rather than original defective formation.

The curious group of cases occurring in one family supports the view that the disease is a pure neurosis, which, like other neuroses, is liable to be hereditary. It is a significant fact also that in two of the most severe cases the disorder was attributed to mental shocks. That the disease depends upon some material change in the spinal cord, or sympathetic cord and ganglia, and that this will yield its secret to steady research, I entertain no doubt. As in the former series of examples, so in these, the fluxes, the sweating, and the diarrhoea, with the flushing and sense of heat, seem to show that the vaso-motor system is seriously involved. To this end also points the heightened temperature observed in every case of active disease except one. In that instance, however, the temperature was tested on one occasion only. In all the others the rise was from one degree to a degree and a half. In every instance the temperature on each side the body was the same, and in the normal degree higher under the tongue and in the vagina than in the axilla when tested there, showing that the sympathetic on one side, or one set of ganglia, were not alone affected. In one of the most extreme cases pain was complained of in the neck, and the cervical vertebræ were tender on pressure and percussion. The only case in which decided improvement seemed clearly dependent on treatment was No. 1, when iodine was given. That improvement was, however, followed by a serious relapse, marked by great palpitation and exhaustion. In none of the others was it tried, owing to an apprehension that it might increase the distressing palpitation. In the case No. 1, in which it seemed for a time so beneficial, the thyroïd and cervical glands, which were greatly enlarged, suddenly and rapidly diminished to the normal size. It is possible that the iodine may have done good by relaxing the pressure of some enlarged glands within the thorax upon nerve fibres or ganglia. Be the explanation what it may, the fact remains that the only decided result obtained by treatment in any of this series of cases followed the administration of tincture of iodine, as in the preceding series of 1869.

X. THE PRINCIPLES OF OPHTHALMIC THERAPEUTICS.*

By R. BRUDENELL CARTER.

IF we disregard for the moment, and for the sake of argument, the rich store of merely empirical knowledge which has been bequeathed to us by former generations, or acquired in the course of our individual observation of the sick, I think it will be found that our power to deal successfully with eye-disease, to arrest its course or to control its termination, is largely dependent upon the degree of accuracy with which we are able, in any case, to refer it to a local, a remote, or a constitutional origin, either singly or in combination, and to address our remedies to these several origins in such relative proportions as their respective importance may demand. Sir Thomas Watson, in his admirable *Lectures upon the Principles and Practice of Medicine*, mentions a detective policeman who suffered from ophthalmia as a consequence of exposure to cold by peeping for eight consecutive hours through a keyhole; and his case, I venture to think, may be accepted as a perfect illustration of disease of local origin. Examples almost equally satisfactory are furnished every day by the forms of conjunctivitis which follow the application of mechanical or chemical irritants, or of contagious secretions; by ulcers of the cornea as results of injury; by the extension to the cornea of conjunctival inflammation; and by keratitis produced by the friction of granular lids. Among the maladies of constitutional origin, as far as we understand the phrase, the difficulty of selecting specimens arises only from their abundance and their variety. The iritis of an early stage of acquired syphilis, or the retino-choroiditis of a later period, the keratitis of inherited syphilis, the retinal

* Being an extract from a forthcoming volume of 'Essays on the Diseases of the Eye.'

changes in albuminuria, the retinal hæmorrhages of arterial degeneration, and the lenticular opacities in diabetes, are only a few of the types which first offer themselves to remembrance. In addition to these two great classes, I think we should recognise a third class also, in which the origin of the affection for which we are consulted is neither local nor constitutional, but only remote; in which some derangement of nervous function, possibly central, possibly occurring at a point intermediate between the centre and the periphery, determines a series of perversions of nutrition which eventually declare themselves by the production of physical changes, and constitute something which we call disease. I have come to regard many forms of variation of tension, or of inflammation of the iris or of the cornea; much in this way; that is, as expressions of a departure from the normal innervation of the affected parts. They are, I think, essentially neuropathic in their character, differing from neuralgia chiefly in this respect—that abnormal tissue change, instead of abnormal sensation, is the manner in which the malady declares itself.

Physiologists have long been acquainted with the influence exerted by the fifth nerve upon the nutrition of the eyeball, or at least with the fact that section of this nerve is frequently followed by ulceration and sloughing of the cornea. It is well known that Snellen entertained a belief that such ulceration and sloughing were not due to the loss of nerve influence, but only to the loss of the protection indirectly afforded by sensation, the animal no longer perceiving the presence and action of irritants, and no longer removing them by the closure of the eyelids or by friction. In support of this view, Snellen divided the fifth nerve in certain rabbits, and protected their eyes either by their own ears or by some other covering, with the result that their corneæ escaped while thus protected, and became ulcerated when the protection was taken away. It may doubtless be conceded that Snellen's hypothesis was to some extent correct, and that unfelt exposure to irritation may be one element in the causation of the ordinary result. Admitting this, his rabbits do not outweigh a great amount of clinical experience which is opposed to his

conclusions ; nor would they do so, even if it were always safe to argue at once from the rodentia to man. Cases of paralysis of the fifth nerve are frequently met with in practice, and loss of sensation is common to them all. In some, from first to last, there is no tendency to ulceration of the cornea. In others, this tendency appears only at a late period of the disease ; often when sensation is partly reëstablished. In some it is present in a slight degree, and is obviated by the prompt use of a protective covering ; while in others it is from the first uncontrollable, and leads to the speedy destruction of the eye. Exposure of the cornea to irritants, again, may be brought about by other causes, such as paralysis of the portio dura, which renders closure of the eyelids impossible, or by atrophy or deformity of the lids, so that they will no longer meet over the eye. I have seen examples of chronic facial paralysis, and also of ectropium, in which the lower lid had not been in contact with the eyeball for years, and in which there was thickening of the palpebral and ocular conjunctiva, and even some development of blood-vessels upon the surface of the cornea, but no trace of corneal ulceration. Among the occasional out-patients at St. George's Hospital there are two women who were long ago treated elsewhere for ingrowing eyelashes, and upon whom, with what seems to me mistaken zeal, a method was then pursued which was first practised by the Carthaginians in the case of Regulus. The women were not, indeed, placed in barrels studded with spikes, but their eyelids were cut off with great freedom of hand. Their corneæ have shown no disposition to ulcerate, but the surface epithelium has become hypertrophied and opaque, and the eyes are dry and skin-like. From such facts as these it would seem to follow that neither loss of sensation nor exposure, although probably predisposing to ulceration of the cornea, will produce it with any certainty, and that its occurrence must be dependent upon conditions connected with the nature, the seat, or the extent of the primary nerve lesion. Meissner, indeed, obtained some experimental results, which, so far as they are worth anything, are confirmatory of this view. He attempted to divide the fifth nerve in rabbits,

and on three occasions so far succeeded that he abolished sensation in the parts supplied by it, but no inflammation or ulceration of the cornea followed. When the animals were killed, it was found that the division of the nerve had in all of them been incomplete, and that its internal portion had escaped without injury. Meissner next succeeded in dividing the internal portion alone, and he then obtained ulceration of the cornea without loss of sensation. Schiff, who repeated these experiments, has confirmed Meissner's results; while others who have followed him have been unable to do so. It seems to have been somewhat overlooked that Longet, more than a quarter of a century ago, believed himself to have established that division of the fifth nerve behind its ganglion was harmless to the nutrition of the eye, but that division anterior to the ganglion, which would cut off also many of the fibres of the sympathetic, was almost always followed by destructive inflammation. I have not been able to find any precise account of Longet's experiments; but we shall see hereafter that this view of the question is in very close accord with the results of clinical experience in the human subject.

Putting aside, however, as of very uncertain value, the evidence furnished by vivisections which may implicate more or fewer structures than those aimed at by the experimenter, we have abundant proof of the remote origin of eye-disease in the occurrence of what is called sympathetic ophthalmia. A wound of the eyeball, especially if it invades the ciliary region, or if, in the course of subsequent events, it produces tenderness of that region, is followed, in a great number of cases, by an inflammation of the uninjured eye of a peculiarly obstinate and destructive character, which can have no other cause than the reflection of some morbid action from the nervous centres. This reflection may, indeed, be of two kinds; for, in a few instances, we see sympathetic irritation instead of sympathetic ophthalmia. Dr. Maats, writing on behalf of Professor Donders, has given a graphic description of a blacksmith in whom a destructive injury to one eye was followed by entire uselessness of the other, in consequence of intense photophobia, constant lacrymation, and spasm of

the orbicularis. The man felt his way about with shaded eye, bowed head, and spasmodically contorted features, and remained in this state for several months. He was placed under chloroform, and no disease of the eye could be discovered; but the remains of that which had been injured were removed, and he rose from the operating-table cured, and ready to resume his occupation as soon as he was permitted to leave the hospital. Instances similar in kind, if slighter in degree, have been described by other authors, and it would seem that the occurrence of such irritation excludes the risk of the more formidable ophthalmia. But in the majority of cases, at no distant date after the ciliary region of one eye has been wounded, and even sometimes when the wound has been limited to other parts, we find in the other eye the commencement of an insidious form of plastic iritis, which usually resists all treatment, extends to the ciliary body and to the choroid, and terminates in wasting of the eyeball. Experience teaches that timely enucleation of the injured eye will prevent the occurrence of sympathetic ophthalmia; but it also teaches that enucleation, although not to be neglected, is of little use if once sympathetic ophthalmia has commenced. Professor Donders, by the careful dissection of injured eyes removed after the mischief was done, has shown that an irritated ciliary nerve may generally be traced into the wound or cicatrix, and is therefore the probable channel of morbid action; and the fact that tenderness of the ciliary region of the injured eye is a symptom of the gravest import to the other seems to point also in the same direction. Of the three kinds of filaments that enter into the ciliary nerves, those from the motor root may probably be acquitted of all share in the mischief; but as between the sensory and the sympathetic fibres the question must remain in doubt. Mr. Vose Solomon accuses the optic nerve, but only on the ground that, in a single instance, sympathetic ophthalmia followed enucleation of the eye in a patient of his own, whose optic nerve, on account of some imperfection in the scissors employed, was bruised at the place of division, instead of being cleanly cut. The ciliary nerves immediately behind the eyeball surround the optic

nerve so closely that they would be almost certain to participate in the bruising; and sympathetic ophthalmia certainly occurs after injury to parts with which the optic nerve has no anatomical connection. In one patient of my own, for example, it followed the extraction of cataract by Von Graefe's modified linear method; and Mr. Bowman, who saw the case, told me that it did not stand alone in his experience. I have also seen it in a patient who had been operated upon by another surgeon for conical cornea. As far as I could ascertain, the summit of the cone had been removed somewhat freely, and the pupil had become partly adherent to the cicatrix. The course of the healing had not been prosperous, and the patient, disappointed at the progress of events, refused to submit to the iridectomy which was needed in order to restore a pupil, and which was still more needed on account of the adhesion. The eye operated upon became glaucomatous, and when I saw it sympathetic iritis of the other had commenced. The suggestion that an eye, even a damaged or useless one, should be removed without delay, is often altogether rejected by uneducated people; and hence sympathetic ophthalmia, which very rarely occurs in private practice, is scarcely ever absent from our hospitals. I believe, indeed, that many more cases are 'sympathetic' than those in which the course of events can be clearly and unmistakably traced; but the latter are sufficiently numerous to establish, beyond the possibility of doubt, the position that a destructive form of inflammation of the eye is produced by a remote peripheral nervous irritation, reflected through the centres, and alike independent of constitutional taint or of local exciting causes.

The phenomena of true herpes allow us to carry the matter a step further. Physicians were long wont to give a conspicuous place among skin diseases to herpes zoster, or shingles, a pustular eruption which forms a demi-cincture round the trunk of the body, which usually maps out the cutaneous distribution of certain spinal nerves, and which is attended and followed by local pain of a severe character. Strangely enough, they overlooked, until quite recently, that a similar affection occurs with sufficient

frequency in the cutaneous territory of the first division of the fifth nerve, that it is usually both more severe and more painful than herpes zoster of the body, and that it is liable to be followed, not only by very persistent neuralgia, but also by different forms of eye-disease. Frontal, or trigeminal, or ophthalmic herpes, as it is now commonly called, was often confounded with facial erysipelas; and even within the last twelve months, notwithstanding all which has been written upon the subject, I have more than once seen this error committed. Mr. Hutchinson was, I believe, the first English writer who laid stress upon the true character of the disease; and both he and Mr. Bowman have since described and figured typical examples of it. The points in connection with its history which are important for my present purpose are that the original eruption is limited to the cutaneous structures, but that, after this cutaneous eruption has run its course, the eye of the same side is prone to suffer in two ways—either by increase of tension, amounting sometimes to absolute glaucoma, or by ulceration of the cornea, which may run on to rapid perforation, and is often attended by iritis. These ophthalmic troubles may appear either singly or together, or sometimes in succession; and they may follow the cutaneous eruption either immediately, or after the lapse of days or weeks. They are frequently associated with intense and protracted frontal or circumorbital pain; and, even when not rapidly destructive, they are often beyond measure obstinate and intractable.

The nature of herpes zoster, and of the connection between the distribution of the eruption and that of the cutaneous nerves, was shown, about the same time, by cases recorded by Bärensprung and by Charcot. In Bärensprung's case, an outbreak of shingles, occurring, without known cause, in a tuberculous boy of a year old, extended from the sixth to the ninth rib. More than two inches in width, it commenced posteriorly, not far from the middle line, between the sixth and the eighth vertebra, and, forming a demi-cincture, it terminated exactly below the ensiform cartilage. The boy completely recovered from the shingles, which followed a regular course; but he died of

phthisis six weeks after the first appearance of the eruption. The spinal ganglia of the sixth, seventh, and eighth nerves were firmly adherent to the parietes of their intervertebral canals. The connective tissue in their neighbourhood exhibited inflammatory redness, and the ganglia, as a whole, were increased in volume. The microscope showed that the neurilemma presented unquestionable traces of inflammation. There were, properly speaking, no discoverable changes in the nervous elements, either of the ganglia or of the nerves themselves. In Charcot's case the patient was a woman seventy-eight years of age, who died in the Salpêtrière. In this instance again the intervertebral ganglia and intercostal nerves, corresponding to the surface attacked by shingles, presented the same appearances as in that last described.

The publication of these cases led irresistibly to the inference that the cause of herpes frontalis must be an inflammation of the Gasserian ganglion, or of its coverings; and an opportunity of establishing the correctness of this inference on the post-mortem table was soon afterwards afforded. We know, therefore, that destructive inflammation of an eye may be excited by irritation of the ganglion on the sensory root of the fifth nerve; and the patients who suffer from frontal herpes are so numerous, and have so little in common in other ways, that here again we may safely exclude the operation upon the eye itself of either constitutional or local causes.

In the patients who suffer from palsy of the fifth nerve, attended by ophthalmic troubles, it is sometimes possible to determine the locality of the nerve lesion with great precision, and to place it still nearer to the eye than the ganglion. A man presented himself at St. George's Hospital, with a history of syphilis, with intense neuralgia of the first division of the fifth on the right side, together with anæsthesia of its cutaneous territory, and with absolute paralysis of all the motor nerves entering the orbit—of the third, the fourth, and the sixth. He had complete ptosis, dilated pupil, total loss of accommodation, and an eye motionless in a central position. With the aid of a lens, to supply the want of accommodation, he could read

brilliant type, and he had neither dilatation of the veins of the retina nor general congestion of the eyeball. Such a combination of symptoms could hardly have been produced in any other way than by periosteal thickening at the sphenoidal fissure, pressing on the sensory nerve on the hither side of the ganglion. Under the use of ten-grain doses of iodide of potassium, given three times a day, the pain was soon relieved, and the motor power gradually returned; the internal rectus being the last muscle to resume its functional activity. But the cutaneous anæsthesia resisted treatment; and, about a month after the patient was first seen, the conjunctiva became injected, the eyeball hot, and the centre of the cornea turbid. At this time the power of the levator palpebræ was fully restored; and it may perhaps be said that the case furnished an instance of trouble arising from loss of the protection afforded by sensation. Careful observation, however, failed to afford evidence of any loss of protection, although the loss of sensation was complete. The lacrymal and mucous secretions were not deficient, and the ordinary involuntary movements of the eyelids took place in unison, on the right side as much as on the left. The hyperæmia and elevation of temperature seemed to point to fresh disablement of sympathetic filaments, rather than to the effect of an anæsthesia which had existed for some weeks before these symptoms declared themselves. The treatment consisted in the careful application of a compressive bandage, and in the administration of the iodide in larger doses, first of fifteen, and then of twenty grains. The cornea never ulcerated, and the conjunctival redness slowly disappeared. But the anæsthesia, and the central turbidity of the cornea, which was sufficient practically to abolish vision, remained unaltered; and after six months the patient discontinued his attendance, and was lost sight of. The physical condition of the eye was such as to suggest the formation of an artificial pupil behind the transparent corneal margin; but I looked upon the case as one in which an operation of any kind would be highly dangerous, and would almost certainly be followed by sloughing of the cornea and destruction of the globe.

The influence exerted upon the eye by ordinary facial neuralgia is well known, and has of late been more carefully studied than at any former time. In nearly every instance of acute pain of the first division of the fifth, we find lacrymation and conjunctival hyperæmia of the affected side, and also increased tension of the globe, which, if the pain recur frequently, is apt to be established as a permanent condition. This fact was first brought into prominence by Wegner, in the year 1866; and my own experience has assured me of the general accuracy of his observations. Nearly every case of glaucoma which I have seen in a comparatively young subject has had a history of antecedent neuralgia, not merely of ocular pain due to the increasing tension itself, but of paroxysmal pain in the whole region of the first division of the fifth; and nearly every patient who is subject to periodic facial neuralgia is conscious of, or will discover on observation, a marked clouding of vision on the affected side during the attack. I think, moreover, that the converse will hold good, and that, as a very general rule, anæsthesia of the fifth is associated with abnormal tension of the eyeball.

It is, therefore, not too much to affirm that we are familiar with grave changes of ocular nutrition, as ordinary results of remote nerve lesion, which may itself be situated either at the peripheral extremity of a nerve of the other eye, or on the ganglion of the nerve of the affected eye, or on the sensory trunk on the hither side of this ganglion, or at the unknown and presumably central seat of paroxysmal neuralgia. There is nothing improbable in the belief that this kind of influence is exerted more frequently than has hitherto been supposed; and clinical experience has long ago forced upon me the conviction that such is the case. I constantly see eye-disease, which cannot be referred to any known or definite local or constitutional cause, in which the pain or other nervous symptoms are in excess of the local lesions, and which resist the treatment that at first sight seems calculated to be successful. In such cases, especially when they occur in persons who have a neurotic family or individual history, or who have been subjected to severe emotional or intellectual strain, I am

accustomed to assume the existence of some remote nervous change, and to bring this hypothesis to the test of therapeutics. If I then succeed in curing the patient, I regard the truth of the hypothesis as being well-nigh proven. Take, for example, the various superficial corneal and conjunctival eruptions and ulcerations which were collectively described as 'strumous ophthalmia' by old writers. We observe, in many of these cases, an element of extreme nervous irritation, manifested as photophobia, which varies greatly in degree in different patients, and even in the same patient at different times, and which stands in no apparent relation to the quantity or character of the local tissue changes. More important still, we find a certain number of these cases which resist all the methods of treatment that are commonly successful, but which yield almost immediately to the administration of arsenic—a medicine which acts upon many forms of neurosis with nearly as much certainty as quinine upon ague, and which almost establishes the general character and analogies of any malady that it cures. For an admirable sketch of the value of arsenic, especially from this point of view, I would refer to an introductory lecture by Dr. Clifford Allbutt, which was published in the *Lancet* in October 1871.

Besides arsenic, the medicines which may be used to confirm a neurotic diagnosis in ophthalmic cases are mainly quinine, iron, bromide and iodide of potassium, and morphia. The influence of quinine and iron upon neuralgia forms part of the common stock of medical knowledge; but I think it is less widely known that these remedies are far more efficacious in combination than when given singly; that they are far more efficacious in small and frequently-repeated doses than in larger ones separated by longer intervals, even though the same absolute amount may be taken; and that the certainty and celerity of their action may be much increased by the addition of a small quantity of morphia. I am indebted to my friend Mr. Gregory of Stroud for the knowledge that a pill containing a grain of quinine, two grains of potassio-tartrate of iron, and from a twelfth to a twenty-fourth of a grain of morphia, according to circumstances, and taken

every hour until an expected paroxysm has been missed, will often cure periodic neuralgia with a rapidity and certainty not to be attained by any other method of administering the same medicines. I have also found this formula to be of the greatest possible value in many cases of eye-disease, in which local changes were progressing too rapidly to be overtaken by the use of a grain or two of quinine twice or thrice a day as a 'tonic,' but in which they were promptly arrested when the patient was brought under the influence of the specified combination.

The action of bromide of potassium upon the central nervous system, and probably upon the blood-supply of that system, is too well established, by its effect upon epilepsy and upon sleeplessness, to need any further remark than that some prescribers still give the salt in inefficient doses, taking ten grains as their average standard rather than twenty or thirty. But the iodide of potassium, on account of its great value in some of the later forms of syphilis, and on account of the large proportion of eye-disease which may be traced to a syphilitic origin, holds a somewhat less assured position as an anti-neurotic. Many practitioners believe that the beneficial influence of the iodide, in any given case, almost establishes its syphilitic character; but in this opinion I am unable to concur. I think that iodide of potassium has a far wider range of usefulness than in syphilitic cases only; that, like the bromide, it has a manifest influence upon the blood-supply of the brain, and that it cures maladies, such as recurrent nocturnal headache, which cannot be traced to a syphilitic origin, or described as syphilitic except by an abuse of language. Like the bromide, the iodide is frequently given in doses which are well-nigh useless; an error which perhaps arises from the circumstance that some patients are extremely susceptible to the action of the medicine. If we habitually order ten grains three times a day as a commencing dose, we shall find, in nearly all the cases in which the iodide is useful, that this dose may be rapidly increased to double or treble the quantity, or even beyond these limits. In some cases, doubtless, we shall find that the iodide does no good; and in a few we shall find

that it is useful, but at the cost of coryza and other troublesome symptoms. I am indebted to Mr. Hutchinson for the practical knowledge that, when the iodide is at the same time clearly indicated and badly borne, it is almost always possible, by reducing the dose, to obtain its advantages without the attendant evils. The patients concerned are persons who are abnormally sensitive to the medicine, but they are abnormally sensitive alike to its remedial and to its poisonous action. For them, therefore, we may possibly find that two grains, or one grain, or even half a grain, will do as much as ten grains for the majority of people; and when we are told that a certain patient cannot take the iodide, or find by experience that he cannot take it in ten-grain doses without inconvenience, we should not on either ground abandon its administration, but should simply diminish the dose until we arrive at one that can be borne, and should then continue this until we see whether beneficial effects are likely to be produced by its employment. The principle of action is to begin with ten-grain doses, to increase them, by five grains or so at a time, if they are clearly useful, whenever there is any arrest in the progress of improvement, and only to diminish them in the few instances in which coryza or other indications of iodism are produced. That a few people are abnormally sensitive to the action of a medicine is a circumstance which does not justify us in giving this medicine to the many in an inefficient manner. When iodide of potassium is really wanted, the administration of five grains twice a day, or of three grains three times a day, is little better than allowing the disease to run its course unchecked.

The larger doses, it must be remembered, require some circumspection in the time and manner of administration. They are best combined with four or five grains of carbonate of ammonia, and freely diluted. I am accustomed to direct the dose to be taken about an hour before a meal, and to be immediately preceded by half a tumblerful of barley-water, which will insure the necessary dilution with a bland fluid.

With regard to the use of morphia, or of other anodynes which may be better adapted to individual cases, it may be

accepted as a sound general principle that no eye will get better while it is acutely painful; so that acute pain must always either subside or be subdued as a condition antecedent to recovery. Perhaps we might also say that a morbid state which is either originated or maintained by remote nervous irritation is not likely to improve in the absence of refreshing sleep. Premising that pain may be due to physical conditions — *e.g.* to increased tension of the globe, to the pressure of a displaced lens upon the iris, to the protrusion of iris through a wound, or to the presence of a foreign body—and that in all such cases the necessary mechanical treatment must be first applied, and may prove to be all that is needed, we may say that the object of using anodynes is to subdue pain and to procure sleep; that for these purposes they must be given, if necessary, in repeated doses at regular intervals; and that they must be measured less by quantity than by their effects. It is seldom necessary or desirable to give anodynes for the moderate amount of pain which usually follows an operation, and which may be expected to subside in an hour or two; nor must we expect to render a diseased or injured eye free from sensations of discomfort. Such sensations are inseparable from abnormal conditions when the nerves themselves are healthy; and in feeble persons there is no less favourable symptom after a cataract operation than a total absence of pain or discomfort. Such an absence usually points to a torpor of the nerves, which is itself incompatible with speedy healing, and is a common precursor of an unsuccessful issue. But severe or long-continued pain indicates, and assists to maintain, a state of nervous irritation which is at least equally incompatible with repair, and which it is always necessary to subdue. Whenever acute or abiding pain is present in eye-disease, we have a reason for the addition of anodynes to any other treatment which is required, and this addition should be made in an effectual manner, by giving to the patient or nurse the means of repeating the dose, if necessary, at stated intervals, until the desired effect has been obtained. It will not do to be content with administering a dose of morphia hypodermically in the evening, or with

prescribing a pill to be taken at bedtime. Provision should be made for the continued administration, say of a quarter of the original quantity, hour by hour, until pain is subdued or sleep produced. There are certain forms of iritis in which the acuteness of pain is a very prominent symptom; and it was chiefly in cases of this class that the late Mr. Zachariah Laurence succeeded, some years ago, in bringing about a cure by the use of large doses of opium or morphia alone. He kept his patients in a state of semi-narcotism for several days, or until all symptoms of acute inflammation had subsided. His original paper in the *Edinburgh Medical Journal* is still interesting; but it was written at a time when the importance of preventing adhesion of any part of the margin of the pupil was not sufficiently understood; and it is probable (the point not being mentioned) that many of his cases, although dismissed from treatment as cured, were left with synechiæ which could hardly fail to excite recurrent attacks of inflammation.

I have already mentioned in outline the distinctive characteristics of what may, perhaps, be called the neurotic forms of ophthalmia; but it may render these characteristics more definite if I relate the histories of one or two patients in whom they have been present.

CASE I. Some time in 1864 I was requested to visit Mr. M. I found a gentleman, about forty years of age, of robust muscular development, suffering from a sharp attack of iritis in the left eye. He had been for some days under the care of the practitioner by whom I was called in, and had been leeched to a small extent, but atropine had not been used. The patient was in bed, in a state of the most profound dejection, and in a room from which every ray of daylight was excluded, while his wife went about on tiptoe with a dimly burning candle. No history of either rheumatism or syphilis could be obtained. The patient suffered little or no pain, and had no physical intolerance of light; but was mentally afraid of its effect upon his eye, and its rigid exclusion was entirely his own act. His pulse was quick and weak, his skin relaxed, his appetite bad, his nights were sleepless. The iris had thrown out a good deal of lymph, the pupil was almost universally adherent, the aqueous humour was turbid, and vision was much impaired, but not more than the manifest changes in the anterior chamber would explain. The treatment had been the use of saline purgatives and diaphoretics, with low diet, and the application of a cooling lotion to the closed lids. Under the instillation of atropine, together with the internal use of quinine and ammonia, and the influence of a good diet and a

favourable prognosis, things soon took a turn for the better. The pupil became dilated, the lymph and turbidity cleared away, and the patient left his bedroom and resumed his ordinary course of life. Some of the points of pupillary adhesion were very obstinate; but in course of time they all yielded to atropine, and the eye was restored to normal vision and to its original usefulness.

The subject of the foregoing history was the occupant of an arduous and responsible office under Government, and a man of anxious temperament and scrupulous conscientiousness. Shortly before his illness he had been directed to undertake a troublesome and delicate inquiry, which called for the investigation of numerous complicated accounts; and he had devoted himself to this duty for many days almost continuously, carrying on his work to a late hour of the night, and arriving at suspicions and conclusions which were very harassing to him. He had been distinctly overtaxing a weak or sensitive nervous system, until the time when iritis cut short his labours. I did not at first perceive the full significance of the facts; but, by the light of subsequent events, I have come to regard the iritis as a phenomenon bearing much analogy to an attack of ordinary trifacial neuralgia, such as might easily have been excited under similar conditions.

Two years later this gentleman was removed, by promotion, to a different part of England, and his exertions in acquiring a knowledge of the details of duty in his new office were attended by a second attack of ophthalmia. He wrote to me in much anxiety. I prescribed atropine, abstinence from work, a good diet, and some increase in the quantity of his ordinary stimulus; telling him to come and see me if matters did not mend. His next report was that all was doing well; and, although from his description I have little doubt about the matter, I cannot be sure that the iris was involved on this occasion.

In 1871 my patient was again promoted, and was placed in London, at the head of his branch of the service. Here he applied himself with great diligence, and under the pressure of a much increased responsibility, to master certain large and complicated matters. Before long he came to my house, with his right eye (not the one previously affected) hot, congested, and uncomfortable. The

congestion was then purely conjunctival, the distended vessels could be emptied by pressure right up to the margin of the cornea, the sight was not in the least degree impaired, the aqueous humour was clear, the surface of the iris was lustrous, and the pupil was free and active. Knowing his previous history, I satisfied myself on all these points with extreme care; and, even when satisfied of them, advised the local application of atropine, together with a mild astringent, one grain of sulphate of zinc to an ounce of water. The pulse was without power, the general aspect dejected. I prescribed quinine with ammonia, and a chloral draught at night. For some days the state of the eye remained unchanged, and then a sudden and severe outburst of iritis occurred, with marked increase of tension, great congestion and swelling of the conjunctiva, and almost entire loss of vision, little more than a dim perception of light remaining. The pupil was blocked up by lymph, and the whole aspect of the eye was excessively unpromising. As on the first attack, the patient perspired copiously, and his state of mental distress was pitiable. There was not a trace of rheumatism, either in his symptoms or in his family history; and, when I again inquired about syphilis, he assured me that he had never contracted it, and that his youth and early manhood had been spent in a remote part of the Highlands of Scotland, where in those days the disease was actually unknown. In severe iritis of the ordinary type I am accustomed to place my chief reliance upon mercury; but here there seemed to be no indication for it, and no reason to expect benefit from its use. I tapped the anterior chamber, and evacuated the aqueous humour twice daily, so as to reduce tension, and applied a four-grain solution of atropine. For two or three days matters mended slightly, and then the atropine produced violent erysipelatous inflammation of the eyelids and cheek, the upper lid becoming so swollen and brawny that the cornea could scarcely be seen. The atropine was, of course, laid aside, compresses wrung out of iced water were applied to the cheek and eyelid during the day, and a lead ointment and water-dressing during the night. Matters slowly improved, until, in the course of a few days, I was induced,

by persistent sleeplessness, to lay aside other medicines in favour of twenty-five grain doses of bromide of potassium, given three times a day. From that date improvement was rapid, and the eye soon regained its natural aspect. A cautious use of atropine showed that the lower half of the pupillary margin was adherent to the anterior capsule; but the adhesion was not in the way of vision, and now, three years having elapsed, it has never been a source of trouble. In this case I venture to think that we have essentially the history of a neurosis, whether we test it by the apparent exciting cause, by the vaso-motor paralysis evidenced by the unusual amount of congestion, by the paroxysmal character of the last attack of iritis, or by the treatment from which the greatest benefit was derived.

CASE II. I was called early one morning to see a London surgeon, on account of discomfort in his right eye. When a student he had contracted a chancre on his hand in attending a labour. Not at first suspecting the character of the sore, he suffered severely from constitutional syphilis; and, at the time of which I speak, many years later, was still occasionally liable to tertiary eruptions. His eyes had never been in any way implicated. He had, when I saw him, been greatly overworked, both physically and mentally, and was suffering much anxiety from domestic causes. On examining the eye, I found extreme contraction of the pupil, with corresponding spasm of the accommodation; so that distant vision was obscured, but the smallest type was easily read near at hand. The iris was quite lustrous; there was no congestion, and the only complaint was of a tight, uneasy, tensive sensation in the eyeball. I applied a four-grain solution of atropine, and waited an hour to see the effect; but scarcely any dilatation of the pupil was produced. In the course of the day iritis set in with great severity. I need not dwell on the details of the case, which terminated in complete recovery. Its interest, from my present point of view, turns upon the precursory spasm of the ciliary muscle and of the sphincter pupillæ, spasm which seemed to point to some remote source of irritation in the nervous system, either central or reflected from the periphery, as the exciting cause of the inflammation.

CASE III. A male patient in one of the medical wards of St. George's Hospital, who was convalescent from sub-acute rheumatism, was referred to me because his right eye was congested, and the light gave him pain. Photophobia depends, generally speaking, upon the ciliary region being abnormally sensitive to movement; so that pain is produced by the changes by which the diameter of the pupil is adjusted for variations of light. It means either tenderness of the ciliary region from inflammation or tenderness from hyperæsthesia. In this case there was no evidence of inflammation, and there was certainly no iritis. The flushing

of the conjunctiva was due, I thought, to weakness of the vaso-motor nerves. Bromide of potassium was prescribed, the symptoms were speedily relieved, and my functions in relation to the patient terminated. A few days later I was asked to see him again, on account of impairment of the sight of the same eye. I then found no pain, and very little redness, but the pupillary margin was tied down, at two or three points, by the adhesions of an insidious iritis.

In the last two cases, it may perhaps be objected to my idea of a neurosis that there was in each a dyscrasia—in the one rheumatism, in the other syphilis—with which iritis is commonly associated, and that we need not look beyond these for the causes of its occurrence. My reply is, first, that iritis is not an ordinary attendant either of a late period of syphilis or of convalescence after rheumatism; secondly, that the manner of invasion was in each case significant of nervous irritation or derangement as an early link in the chain of events; and, thirdly, that we are by no means sure that a transmitted nerve influence may not be among the channels through which a dyscrasia may produce its effects upon the structures of the eye.

CASE IV. Miss — was brought to me by her usual medical attendant. She was a single lady, forty years of age, of emotional temperament, and working hard in a very arduous profession. In early life she had been subject to migraine, and of late years to facial neuralgia, which was liable to be brought on by any unusual fatigue or annoyance. She was plump and well nourished, with a soft and delicate skin, and dark complexion. Her hair, once black, had become quite gray before she was thirty, but was long and very abundant. She was still menstruating regularly and in natural quantity, but always suffered from languor, and generally from neuralgia, during the periods. She was an only child; her father had been dead for some years, and she could give no information about his last illness; her mother was living, but hemiplegic. Her right eye was natural in appearance, but its sight had been very defective from early childhood, and it was of little use to her; although the ophthalmoscope showed nothing to account for the amblyopia. The left eye, for which she consulted me, had been painful, and losing vision rapidly, for three or four days, and, at the time of her visit, was practically blind. She could see the position of the window in front of her, but could not count fingers. The eye presented a perfect type of acute glaucoma. The conjunctiva was injected, but not sufficiently to conceal the distended veins which passed out through the sclerotic. The cornea had a misty aspect, like that of a glass which has been breathed upon; the pupil was semi-dilated, the iris was pressed forwards towards the cornea, and the tension of the globe was extremely high. Iridectomy was performed the same day; and, when the bandages were removed after the operation, it was manifest that great improvement

of sight had taken place. But the vessels of the iris, as well as those of the sclerotic and conjunctiva, had bled freely; and a comparatively large amount of blood had been left in the anterior chamber, and was only very slowly absorbed. The operation wound healed kindly, the tension was reduced, and the cornea became clear and bright; but the conjunctiva, both ocular and palpebral, remained much congested, and the plica semilunaris was swollen into quite a prominent fold. The patient could read the largest of Jaeger's types; but at this point she remained almost stationary, sometimes improving a little and sometimes falling back, for nearly six weeks. During this time she took, by turns, bromide of potassium, quinine with ammonia, and phosphorus with nux vomica, together with occasional sedatives. A compressive bandage, generally moistened with some anodyne lotion, was applied to the eye, and the plica and the palpebral conjunctiva were carefully pencilled, on two or three occasions, with solid diluted nitrate of silver, which seemed to do neither good nor harm. The patient was fed as well as her appetite would allow, and was directed to take drives in the open air. Things were in this state, when one day a turbid white patch appeared on the cornea, below its centre, and rapidly developed into an ulcer, which increased so fast, both in extent and in depth, that it threatened to perforate in a few days. I formed the worst possible opinion of the case, and, rather because I knew not what else to do than for any better reason, determined to try the effect of iodide of potassium. Ten-grain doses, given three times a day, arrested the progress of the ulcer within twenty-four hours, but occasioned coryza and an unpleasant taste in the mouth. The dose was reduced to seven grains, and rapid and complete recovery was produced. Within a fortnight the ulcer had healed, and the conjunctival redness had disappeared. The patient went to the country, and then to the sea-side, but continued the iodide for several weeks, with the result that the cicatrix of the ulcer can only be discovered by careful examination. She has become presbyopic, and requires spectacles for reading; but, with this exception, her sight is as good as ever it was, and she is now actively engaged in her professional duties. The effect of the iodide of potassium was as marked and as unmistakable as it often is in the syphilitic forms of paralysis; but the idea of syphilis seems to me to be untenable. Putting aside the good repute and the unmarried state of the patient, I should regard her general physical condition as being itself almost conclusive upon the point. I should attribute alike the high tension, the congestion, and the corneal ulceration, to some influence transmitted through the fifth nerve, and in which its sympathetic filaments were largely concerned.

CASE V. A widow lady, seventy years of age, was sent to me by her usual medical attendant. She had iritis of the left eye, and a marginal ulcer on the inner side of the cornea, extending about a third of the way round, and with two points of deeper ulceration, containing sloughs, in its course. The centre of the cornea was clear, the pupil was adherent by several points to the anterior capsule, but was not much contracted, and vision was reduced to one-third. The conjunctiva was congested, and there was no pain. The treatment had been quinine, fomentations, and

good diet, but no atropine. I advised a four-grain solution of atropine to be used three times a day, a compressive bandage to be alternated with hot fomentations, and bromide of potassium internally. If no great improvement took place in three days, the bromide was to be replaced by the iodide. I did not see the patient again, but learnt that after three days the iodide had been given as suggested, with immediate and great benefit. Six weeks afterwards I heard that the eye was 'quite well.' I cannot understand any reason why a vigorous old lady of seventy should have inflammation at once of the iris and of the cornea of one eye only, without any manifest predisposing or exciting cause, except from some influence exerted through the nerves which govern the nutrition of the parts concerned.

If we pass on now to consider the affections which are of constitutional origin, we are necessarily confronted in the first place by syphilis, the most far-reaching and the most widely-diffused morbid poison of which we have any knowledge. We shall scarcely see a single case of eye-disease, as distinguished from defects of shape or of function, in which we shall not have to weigh the question, 'Is this syphilitic?' and the number of instances will be very large in which the balance of probability will incline to an affirmative reply. If we include all its known forms, syphilis attacks every important structure of the eye directly—the cornea, the iris, the retina, the choroid, and the vitreous, being all the common seats of distinctly syphilitic affections. It also attacks the eye indirectly, as when syphilitic paralysis of the third nerve produces ptosis, or when syphilitic paralysis of the fourth or sixth produces double vision, or when syphilitic paralysis of the fifth nerve produces (as we have seen) corneal opacity or ulceration, or when syphilitic tumours in the brain produce the changes which have been miscalled optic neuritis, with the attendant liability to consecutive atrophy and blindness. The question of the diagnosis of syphilis is one upon which it is not necessary here to dwell, further than to say that, from various social and domestic reasons, and on account of certain obvious temptations to untruthfulness, it is often beset with great difficulty, while, at the same time, it may be absolutely necessary for the surgeon to arrive at some definite conclusion with regard to it. The occurrence of iritis in one eye of a previously healthy young woman, soon after her marriage to a man who is

very likely to have contracted syphilis, but who denies having done so, is perhaps as good an example as can be found of the practical bearing of an oftentimes insoluble problem. In such a case, it is generally a simple matter to cure the iritis, whatever may be its nature ; and, supposing it not to be syphilitic, there will be an end of the difficulty. But if it should be syphilitic, the patient, when her iritis is cured, will only have completed the first link in a long chain of morbid action, likely to entail suffering, and perhaps premature death, upon herself, and to be continued to the next generation in her children. From such a fate she may be rescued if the surgeon can say that the affection of the eye is an expression of a constitutional malady, and can induce her to submit to the treatment necessary for its cure. When certainty is not attainable, high probability must be accepted as a guide, and it is better to be content with high probability than to enter upon inquiries which may be productive of domestic unhappiness ; always remembering, however, that the patient should have the benefit of a doubt in this sense,—that to overlook actual syphilis is, in practice, perhaps the most serious of all errors, while to suspect it when it is not there, and to act upon the suspicion discreetly, is an error indeed, but one which may relatively be described as trivial. The nature of the case renders it incumbent upon every practitioner to cultivate, in the highest possible degree, the faculty of recognising the external signs of syphilis, so that he may be able to form a diagnosis independently of history. It is not sufficient to know that syphilitic eruptions usually leave copper-coloured stains ; but all the effects of the disease should be studied with the sort of care which was bestowed upon symptoms by the physicians of an earlier day, before the multiplication of instruments of diagnosis had produced our own comparative independence of the art of personal observation. Whoever, in dealing with declared syphilis, leaves nothing unnoticed, will often come upon the track of the undeclared as an Indian recovers a trail in the wilderness, by signs which cannot mislead, but which are too slight to engage the attention of less cultivated faculties.

The worst manifestations of ocular syphilis which have fallen under my own notice have occurred in patients in whom the primary disease had been recognised, but who had been lulled into a false security after an inadequate period of treatment, which had indeed removed local symptoms, but had left the constitutional malady untouched. A few years ago, more than at present, it was the custom for surgeons to begin the management of syphilis well, and to stop prematurely in the midst of their well-doing. A man contracted a chancre, and his inguinal glands became indurated. He was treated with mercury for perhaps six weeks, or until the chancre had healed and some trivial secondary eruption had appeared and faded, and then he was allowed to lay aside the medicine. He was told that he might or might not have further secondary symptoms; and that, if they appeared, it would be sufficient to treat them with iodide of potassium. The great debt of gratitude which the world owes to Ricord has been materially enhanced by his long life, which has enabled him to witness the end of things, to watch over his patients from their adolescence to their old age; and to see, in many cases, the manhood of two generations of their descendants. From the evidence gathered during an experience which is nearly as unparalleled in its duration as in its extent, he tells us that syphilis is radically and permanently curable, but that it cannot be cured, as a rule, otherwise than by a course of mercury continued, with due intermissions and precautions, for something like twelve months. Less than this will, indeed, in most cases, leave the patient apparently well, but the disease will again declare itself at some future time, and often in some of the obscure forms the nature of which we have only just learned to recognise.

In 1857, a young gentleman, reading in London for his army examination, contracted a venereal sore, and wrote to me for advice about it. I was then living in the country, and I told him to go to an eminent hospital surgeon, and to pay implicit obedience to his directions. The sore was pronounced to be a hard chancre, and mercury was given in the way to which I have just referred. After a few

weeks it was discontinued, and patient and doctor were both satisfied. The former obtained his commission, and went to India with his regiment. He was a keen sportsman, and after snipe-shooting in some marshes was attacked by what was called rheumatism, and was sent to England. Here he recovered, and went to Aldershot on duty; but was again attacked, and was sent away from the camp to his father's house, where he had been lying in bed for a month when I was asked to see him. Many of his joints were swollen and tender, and he was quite helpless. I told his medical attendant of the chancre, and we agreed to lay aside all other treatment in favour of iodide of potassium. In a week our patient was riding about on horseback, and he soon returned to duty. A year or two later his syphilis showed itself again, this time by occlusion of a cerebral artery and consequent hemiplegia; so that this gentleman, not twenty-five years of age, was crippled and disabled for life. Such a history is common enough; but any individual practitioner usually sees only a part of it, and the part which chiefly falls under my observation is the cropping up of syphilitic disease of the retina or choroid, or of brain tumours producing secondary mischief in the eye. Quite lately a gentleman came to me with loss of central vision in one eye; and the ophthalmoscope showed a patch of disease over the region of the macula lutea. I expressed a belief that it was syphilitic, and inquired his history. Three years previously he had contracted a chancre, and had been treated for it in Ireland, by an eminent surgeon now deceased. At my request he wrote to the druggist who prepared his medicine, and obtained copies of the prescriptions, with the dates at which they were made and repeated. It appeared that he had been under mercurial inunction for a fortnight, and that then he had taken small doses of the perchloride for four weeks, making six weeks of mercury in all; and this was the result. Analogous cases present themselves every day to those who will take the trouble of tracing out a chain of antecedents.

The instances in which we are led by iritis to the discovery of an early stage of syphilis present no difficulty

with regard to treatment, except such as may arise from the incredulity or the circumstances of the patient. We have but to cure the iritis in the ordinary way, and to apply to the syphilis the principles which Ricord has so clearly stated. If the patient will not take mercury for the necessary time, so much the worse for him; and if he is forewarned of the probable consequences, the surgeon is relieved of all responsibility. That the mercury should be cautiously given, and in such a way as to avoid the production of its poisonous effects, is a matter of common sense on which it is unnecessary here to dwell.

When the period of primary syphilis has long passed away, and when mercury has been given for a few weeks, as in the cases above cited, it is much more difficult to decide upon the course to be pursued. We have, then, two remedies between which to choose, mercury and iodide of potassium. Of these, iodide of potassium is the more rapid in its influence upon the symptoms actually present, but it probably possesses little or no power to modify the systemic malady. Nothing in clinical history is more remarkable than the rapid amelioration of the symptoms of late forms of syphilis under the use of the iodide; nothing is more certain, generally speaking, than their recurrence in the same or in some modified form. Mercury, on the other hand, will be slower in producing its first action, but more effectual as against the syphilitic taint; although it is not proven that syphilis of long standing can be cured by mercury, at least with anything like the same certainty as the earlier stages of the disease. It is in the eye, however, that the immediately curative effects of mercury are most remarkable; and it is from its visible action upon iritic effusions that many inferences have been drawn with regard to its supposed kindred action in parts of the body that are concealed from view—as, for instance, in the pleura. I am indebted to my lamented friend the late Dr. Anstie for the suggestion that these inferences may possibly be in some degree erroneous. He believed that mercury has some special elective affinity for, or special action upon, the parts which are supplied by the fifth nerve, and did not admit that its manifest influence upon iritis is neces-

sarily an evidence that it will exert a similar or equal influence elsewhere. In support of this view it may be said that the poisonous effect of mercury is displayed first upon the gums, which derive their nerve supply from the source indicated; and we may also find something analogous in the deposition of lead in the gums, coupled with its tendency to produce atrophy of the optic nerves. The suggestion is one upon which I need not dwell, but it will serve to call to mind the powerful effect of mercury upon the eye, as well as the possibility that the argument from the eye to other organs may be fallacious. Returning to the question immediately under consideration—the choice between mercury and iodide of potassium—it may, perhaps, be said that the best rule of practice is to inquire whether the local changes in actual progress are such as to inflict irreparable injury unless they are speedily arrested. If they are, iodide of potassium should be given in the first instance, and should be continued until a distinct impression is made upon the case; when it may be laid aside, and mercury given instead of it, with the hope of anticipating subsequent phases of mischief. If the changes in progress are not of this pressing character, it may often be best to give mercury from the first. A corneal ulcer threatening to spread or to perforate, so that in two or three days it might permanently impair the eye as an organ of vision, or an amount of effusion in the nerve disc likely to lead to speedy atrophy by its interference with the local circulation, would either of them call for the most rapid influence that the iodide could afford. A mere haziness of the cornea, or a turbidity of the vitreous body, or a limited amount of retinal or choroidal change, may be taken to illustrate conditions in which it would be legitimate to wait for the more gradual operation of mercury.

The mode of administering iodide of potassium has been already described; and, concerning the administration of mercury, there is nothing to be said which has any special application to the eye. The skill of modern pharmacutists has multiplied preparations; but by these I have not been tempted to forsake old and trusted friends. Sir Astley Cooper was wont to tell his pupils

that if they were much addicted to new remedies two results would inevitably follow: first, they would not cure their patients; secondly, they would have no patients to cure. For the most part, I am accustomed to gain a knowledge of new remedies chiefly by reading or hearing the accounts given of them by others; and I feel that the weapon which I have learnt to use is that which, in my own hands at least, is most likely to do good service. In order to obtain a mercurial influence quickly, I use either blue pill, or inunction with blue ointment, or both together; and, for prolonged administration, the perchloride. Inunction is often useful for adults, but its especial value is in the case of young infants suffering from a combination of purulent ophthalmia and inherited syphilis. For them, the plan I prefer is to smear every day a little fresh ointment on a strip of flannel, about an inch and a half wide, which is buttoned round the abdomen, next the skin, and worn constantly. Mr. Hutchinson is accustomed to have the ointment rubbed into the soles of the feet, the only part of an infant's skin on which it never produces irritation. To this there are no other objections than the trouble of protecting the hands of the rubber, and the ill-consequences which may follow if the protection should be incomplete. Together with the pill or the inunction, except in the case of infants, it is wise to employ a little opium to check griping or purgation; and the perchloride combines admirably with iron, or quinine, or arsenic, or with any two of them, and is generally more effective in combination than alone. To this armamentarium I am beginning to add a new remedy which is of sufficiently good repute to deserve a trial—namely, Staub's chloro-albuminate for hypodermic injection; but I cannot yet speak of it from an experience large enough to form the foundation of an opinion. Calomel, with precautions and under conditions that will be described when discussing the diseases of the cornea, is often useful as a local application; but, given internally, it has no advantage over blue pill, and the calomel-vapour baths, so much extolled by my esteemed colleague, Mr. Henry Lee, have appeared to me to be somewhat uncertain in their operation, and, some-

times, to be too energetic. For these reasons they fail to fulfil what I regard as essential to a good method of mercurial treatment—namely, that the surgeon should hold the reins of it in his hand. We are much indebted to Mr. Haynes Walton for the force and clearness with which he has pointed out the boundary between the remedial and the poisonous action of mercury; and this boundary the prescriber should never transgress. Save in the exceptional cases of idiosyncrasy, in which mercurial poisoning may be produced by a single moderate dose, there should be no such thing as a sore mouth resulting from treatment. The slightest line upon the gums indicates a point beyond which the medicine should not be pushed; and the highest art of administering mercury is to keep the patient, as it were, on the brink of this line, without permitting transgression of it. For this purpose, the inexperienced practitioner must be content to feel his way; and the most experienced will constantly find that he can do little more.

The other forms of constitutional malady which entail proclivities to eye-disease are chiefly gout, rheumatism, albuminuria, and diabetes; and there is little to be said concerning them beyond the obvious caution that they must not be overlooked, and that the general treatment which any of them, when present, would require, must be combined with the local treatment which the affection of the eye may render necessary. Again, there are certain temporary states of system which would materially affect both the prognosis and the treatment of ocular disorders apparently identical in their nature. A hæmorrhage in an eccentric portion of the retina, occurring in a woman whose whole circulation was deranged at the period of the menopause, would call for little more than the ordinary precautions of the time; while a similar hæmorrhage in a man of the same age would suggest extensive disorder of the arterial system, and would, in all probability, be the precursor of renal disease or of apoplexy. Hence it is always necessary to inquire, in any case of eye-disease, not only with regard to the presence or absence of what may be called the greater forms of dyscrasia, but also, generally,

‘What is there lying behind this local change?’ The inquiry becomes especially important in the case of patients who are passing from middle life towards old age, but there is no period at which it can be neglected with impunity. Appetite, diet, exercise, sleep, the tone of mind, the nature and amount of work, the character of the atmosphere habitually inhabited, and the balance between waste, repair, and supply, as shown by the state of the excretions, should all be systematically inquired into. A patient cannot make a speedy and satisfactory recovery if he is underfed or overfed, if he leads an unduly sedentary life in vitiated air, if his brain is overworked or harassed by emotions or anxiety, if his sleep is insufficient, or if his system is loaded with waste which his excreting organs fail to remove. Neglect of these conditions is not an uncommon result of too early a devotion to specialism on the part of the practitioner; and, in its effect upon the patient, is a fruitful parent of chronicity and of relapse.

It must not be inferred from the foregoing observations that the local treatment of eye-disease is to be neglected, or that it is unworthy of the closest and most careful attention. On the contrary, whatever may be the background, so to speak, of remote or of constitutional causation, and however necessary it may be that this background should be modified by circumstances or removed by art, yet still, in all the maladies of the parts anterior to the crystalline lens—that is, of the iris, the cornea, or the conjunctiva—the character of the local treatment will usually determine the degree of excellence of the local recovery. An eye is liable to be spoiled, for visual purposes, by even a brief continuance of certain morbid processes; and it is, therefore, the business of the surgeon to terminate these processes as rapidly as possible. Their gravity may be due solely to their situation; and, just as a degree of inflammation which would be trivial in any other part of the mucous membrane may destroy life when it occurs in the larynx, so an ulceration, which would elsewhere be left to run its course, may destroy vision when it occurs upon the cornea. If a patient has a syphilitic ulcer of the leg, we need take little trouble about local applications, knowing that it will heal

under the influence of rest and of anti-syphilitic internal medication. But if he has a syphilitic ulcer of the cornea, we must remember that the difference between judicious and injudicious local treatment will determine whether or not it shall extend or deepen for two or three days longer than it need; whether or not it shall perforate; whether it shall leave a mere temporary nebula, or a cicatrix disfiguring to the appearance and disturbing to the sight. In vascular inflammation of the cornea it will depend, in great measure, upon local treatment, whether or not the curvature of the membrane shall undergo injurious modification. In iritis it will depend upon local treatment whether or not the pupillary magin shall be left adherent to the lens. Lastly, in many of the more acute forms of conjunctivitis, it will depend upon local treatment whether or not the cornea shall escape injury, and whether the malady shall be cured in a reasonable time, or shall lapse into a stage of absolutely indefinite duration and of infinite possibilities of mischief. While, therefore, we must neither overlook nor neglect to treat the systemic conditions on which affections of the eye may more or less depend, we must not place reliance upon constitutional treatment only, to the neglect of the various local applications by which the local malady can be conducted to a safe and speedy termination. Of the two errors, the less serious would be to neglect the constitutional treatment, because this neglect might often be repaired on some future occasion; while, on the other hand, a corneal ulcer suffered unduly to extend itself, or an iritis suffered to establish firm adhesions, may easily produce consequences which would be altogether irreparable.

There are certain principles of local treatment, of very general applicability, which it will save repetition to state once for all in this preliminary essay. In the uncovered eye, the lids are constantly passing to and fro over its surface, so as to remove particles of dirt deposited from the atmosphere, and to diffuse the tears and conjunctival mucus evenly over the globe. In diseased conditions, when the conjunctiva and cornea are roughened by the projection of distended blood-vessels, and when the natu-

ral secretions are altered or diminished, and especially when there is any abrasion or loss of the corneal surface, the friction of the lids becomes not only painful, but injurious, and the movements are at the same time increased in energy and frequency by reflected irritation. It then becomes necessary that they should be restrained; and for this purpose we employ what is known as a 'compressive bandage.' This is composed of a small piece of fine linen to cover the lids, some carded cotton-wool for padding, and a roller, about an inch and a half wide and nearly two yards long, formed of any fine elastic material, but preferably either of what is called 'water-dressing bandage' or of flannel gauze. The free end of the roller should be placed on the forehead, over the affected eye, and the first turn should be made across the forehead and round the head horizontally, so as to secure the end. When the roller reaches the forehead, over the sound eye, for the second time, it should be inclined downwards, carried under the lobe of the ear, round the occiput, under the lobe of the second ear, and then upwards across the face, over the affected eye, to the forehead. Before the roller is brought over the affected eye, the small piece of linen should be placed upon the closed lids, and all the hollows of the orbit should be filled and padded with the cotton-wool, in sufficient quantity to allow the roller to exert distinct but gentle and uniform pressure on the parts beneath. When the roller reaches the forehead, it should be secured to the horizontal turn with a pin, and then a second horizontal turn over all will complete the application. By varying the quantity of wool and the degree of tightness of the roller, any desired amount of pressure may be exerted by this bandage, which, if carefully applied, is very little liable to be displaced. Too much care cannot be taken in filling the orbital hollows, and in so distributing the wool that its pressure may be uniform, because if a bunch of wool were simply applied to the lids over the convexity of the globe, and then bound tightly on, the effects of such a proceeding might often be disastrous. For a patient who is able to walk out, and who objects to the

white bandage as being unsightly, a tolerably efficient substitute may be made by a double piece of soft black silk, six inches long and an inch and a half broad, neatly hemmed, turned in to a point at each end, and having three-quarters of a yard of narrow soft black ribbon sewn to each point. The silk may be placed obliquely over the carded wool, with one point coming to the temple on the sound side, the other under the lobe of the ear on the affected side. The ribbons may then be brought to meet at the occiput, crossed there, brought horizontally round the head, and tied in front, or over one ear.

There are many circumstances under which it is desirable to apply cold or heat to the eye; the former to moderate, the latter (as in the case of sloughing ulcers of the cornea) to promote vascular action. For these purposes we employ compresses of various kinds. For cold, the compresses should be of fine linen, about two inches long by an inch and a half broad, smoothly and evenly folded, and composed of from four to six thicknesses of material. Half a dozen or so being prepared, they should be steeped in a basin of cold water, in which, if desirable, a lump of ice may be floating, and which should be placed close to the patient. The nurse takes out the first compress, squeezes it in her fingers just sufficiently to prevent water trickling from it when it is applied, and places it gently over the closed lids. In a time varying from one to five minutes, according to the heat of the part and the effect desired, the compress should be exchanged for a second, the first being replaced in the iced water. The object of having several in use at once is that, by taking them in regular rotation, each may have time to become perfectly cold before it is reapplied. If the water be hard, and the skin of the eyelids delicate, it is well to apply a little olive or almond oil to the latter, to prevent superficial irritation.

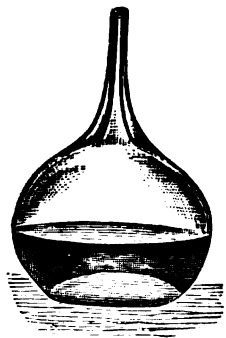
For the application of heat the flat compress is less effectual than something lighter and more bulky; and for this purpose small sponges may be employed, wrung out of hot water in a similar manner. Von Graefe was accustomed to use hot camomile fomentations, and to apply them by means of little muslin bags, in which a few camo-

mile flowers were sewn up prior to being boiled. Each bag, as it was taken from the eye, was returned to the decoction to recover its temperature; and it is obvious that, whether water or some medicated decoction is employed, it must be kept hot during the whole period of application, either by a spirit-lamp or some similar contrivance, or by additions of fresh hot liquid from time to time. As a rule, neither heat nor cold should be applied to the eyes continuously for any long period; and an hour, twice or thrice a day, will usually be enough for either. In the intervals the compressive bandage should be carefully adjusted.

The bandage, by excluding light and by preventing movement, affords a considerable degree of rest to the eye, and thus places it under conditions favourable to recovery. But, in order to obtain complete physiological rest, it is necessary to have recourse also to atropine, which paralyzes for a time both the ciliary muscle and the sphincter of the pupil; and thus establishes absolute internal relaxation and passivity of the organ. Furthermore, on account of the close functional union and sympathy which exists between the eyes, it is necessary, whenever one is seriously affected, to enforce entire rest of its fellow—that is to say, to enjoin abstinence from reading, writing, or any other pursuit requiring visual application, as well as avoidance of exposure to dust, cold winds, heat, or glare.

The use of atropine for the purpose above mentioned is best accomplished by a solution in distilled water of the neutral sulphate, of the strength of two grains to the ounce. This solution, if the drug be pure and neutral, is absolutely unirritating to most eyes; and a drop may be placed in the lower conjunctival fold, near the outer canthus, two or three times a day. For the purpose of making the application, there is nothing better than a goose-quill, cut to a blunt scoop; but, considering the highly-poisonous nature of the solution, it is perhaps safest to send it out in special bottles, with a dropping apparatus attached. Various contrivances have been devised for this purpose; but the best of them is a little blown-glass bottle of the size and shape shown in the figure (p. 122).

By heating the bulb of this bottle slightly in the flame of a spirit-lamp, the contained air is caused to expand; and then, by inverting the bottle, and dipping its beak into the solution, a sufficient quantity will be driven through the capillary opening by atmospheric pressure. In use, it is only necessary to invert the bottle, to hold it in the warm hand, and to touch the lining of the lower eyelid with its beak, from which a drop will issue.



If the application of atropine should be painful, the most probable explanation is that the drug is impure or not neutral, or that sulphuric acid has been either set free by spontaneous changes, or added by the dispenser to obtain a clear solution. In such case, no time should be lost in obtaining a fresh supply. But when atropine has been long in use, the best preparation is apt to cause local irritation in some persons, and this irritation is usually more manifest in the eyelids, and especially on the lower lid, and on the adjacent skin of the cheek, than elsewhere. It may be readily recognised by a peculiar stiffness and dryness of the inflamed skin; and the swelling of the eyelid is usually sufficient to remove the lower lacrymal punctum from contact with the globe, and thus to produce an overflow of tears. Under such circumstances, the atropine must be laid aside, and some soothing application made to the closed lids. The best is, I think, the compound ointment of subacetate of lead of the *British Pharmacopæia*, which may be applied to the skin freely, and a soft bread-and-water poultice laid over it. But it is a rule without exception that no preparation of lead should enter an eye when there is any loss of corneal epithelium; because we are then liable to have an opaque deposit of carbonate of lead formed upon the surface. If the corneal surface should be ulcerated or abraded, it is the safest practice not to let lead come into use, even as an external application, for fear of mischance; and in such cases I prescribe for the atropine irritation a simple ointment, into which a

little sedative solution of opium has been stirred—perhaps in the proportion of half a fluid drachm to an ounce of ointment. There are some persons, however, by whom no preparation of atropine or of belladonna can be borne even for a time; all of them alike producing an erysipelatous inflammation. Such instances are rare; but there are few writers on ophthalmic surgery who do not record one or more from personal experience, and I have myself met with two of them. It is unnecessary to say that such an idiosyncrasy places a most formidable obstacle in the way of treating iritis and various other affections.

In the case of children, and especially the children of the poor, who are often roughly handled by their parents, and who have not learnt to trust to them, the proper application of atropine is sometimes a matter of considerable difficulty; and the solution is very apt to be washed out, or at least diluted, by tears. At hospitals we constantly see children for whom atropine has been prescribed, but whose pupils are not dilated. Occasionally, perhaps, no one at home has taken any trouble about the matter; but more frequently, I believe, the drops have gone over the cheeks, or anywhere but into the eyes, or they have been applied so roughly as to produce plentiful crying. In hospital practice such children can be brought every day, so that the application may be made effectually; and it will often be desirable to use, instead of the solution, the little wafers of atropinised gelatine which were devised by Mr. Streatfeild. I do not like these wafers for common use, because they often produce too much smarting; but for crying children they have a great advantage in the fact that they dissolve slowly, and that the medicament is not liable to be at once washed away by a gush of tears.

The practice of depletion, which was once largely followed by ophthalmic surgeons, is now confined within narrow limits. It seems scarcely credible, but is none the less a fact, that it was once customary to bleed copiously from the arm in iritis and in purulent ophthalmia, and even to follow the bleeding by the application of countless leeches. It is a curious matter of history that the various devices for making a leech take more than once had their

origin in the enormous demand for these creatures which was occasioned by the epidemic of contagious ophthalmia that prevailed in Berlin in the year 1820. At the present day, we take blood in eye-disease only sparingly, and chiefly by two methods—the natural leech and the artificial one. The natural leech is very useful in many superficial diseases; the artificial leech chiefly in those of the deeper parts of the eyeball. In any form of ophthalmia which is attended with great heat and swelling of the eyelids, in some cases of iritis, and in some cases of injury, including many operations for cataract, a leech may often be usefully applied. The best position is usually over the frontal bone, immediately external to the margin of the orbit, and a little above the level of the external canthus. I say a leech rather than leeches, because I think it undesirable to multiply bites. If more blood be required than one leech would be likely to draw, the best plan is to make a free longitudinal incision, with a sharp lancet, into the creature when it is nearly full, and it will then continue sucking until detached, being no longer inconvenienced by the distension of its alimentary canal and integument. The incision should be made in the side of the leech, near its caudal extremity. The artificial leech is much more rapid in its action than the natural one; and is essentially a cupping instrument, adapted to take a few ounces of blood quickly from the temporal region. The form in common use is that of Heurteloup, improved by some recent modifications. The cutting portion consists of a sharp punch, capable of being set to any desired depth, and made to revolve rapidly by releasing a coiled spring. The blood is received in a glass cylinder, which is pressed upon the skin around the wound, and which has a well-fitted piston, working by a screw rod. As the operator screws up the piston, the blood follows to fill the vacuum which is produced. The knack of application consists chiefly in not turning the screw too quickly; for otherwise, if the piston be drawn up faster than the blood can follow, the pain of the operation will be considerable. Whenever this method of depletion is used for deep-seated maladies, such as those of the retina or choroid, it

is desirable to keep the patient in almost total darkness for the next twenty-four hours, so as to avoid a vascular reaction, by which the original congestion might be increased.

The remaining forms of local treatment consist almost entirely of applications which are special to particular maladies, and which can only be appropriately described when these maladies are themselves the subjects of discussion.

XI. A CASE OF PUERPERAL BLOOD-POISONING.

By H. FLY SMITH, M.B. Oxon.

Mrs. J., æt. 23. Family history good ; no hereditary disease ; was confined of her second child on July 14th without any remarkable event. The labour progressed and concluded naturally. As, however, she was of very excitable temperament, and bore pain badly, two doses of chloral hydrate, each forty grains, were given, one at the commencement of sharp pains, and the other when the head was beginning to distend the vagina, with the effect of calming and enabling her to go through the labour without excessive exhaustion. The milk was secreted after twenty-four hours ; the lochia were normal. The bowels acted on the second day with a gentle aperient. Everything was apparently going on well.

July 21. 11 A.M. The nurse reports that her patient has suffered two severe shivering fits, each followed by profuse perspiration, during the night, the first commencing about 4 A.M.

Examination. The aspect of patient is not alarming ; the face is calm and comfortable, not at all anxious ; the tongue clean and moist ; the milk is plentiful, and the infant has taken it, and is sleeping quietly. The lochia are palish red, natural, not offensive. The abdomen gives no indication of peritoneal mischief, though there is some tenderness on pressure at right iliac fossa, where the uterus can be plainly felt, but none at left iliac fossa ; per vaginam there is nothing abnormal. The pulse, however, is 110, regular and natural in impulse ; the temperature, 100·8°. There are no symptoms of cardiac, pulmonary, hepatic, or renal mischief. 6.30 P.M. Has been rather thirsty during the day, but has eaten fairly, and had her afternoon sleep. During this visit the third ague-like fit came on. The patient complained of feeling chilly, then intense shivering came on rapidly ; the features became pinched and of a leaden hue, the eyes sunken ; the skin felt dry and harsh, but not sensibly altered in temperature to the hand. The fingers were shrivelled and livid. This cold stage lasted some ten minutes, followed by a short, dry, hot stage, terminating in profuse perspiration. Soon the skin felt again natural, though moist from sweat. The pulse, which had quickly mounted up to 130 beats, became gradually slower, softer, and fuller. The patient complained of fatigue, and annoyance rather than anxiety at the attack, as she thought she was going on so well, and hoped to have made a speedy recovery. There was no headache, though the face was somewhat flushed, nor any pain referable to the womb or breasts.

On the advent of the cold stage I gave her some hot brandy-and-water, and this was repeated on some future occasions with, in two instances, thirty drops of laudanum, but the dose did not seem to have any particular effect, and perhaps made the hot stage hotter.

July 22. 11 A.M. The report was favourable; there had been no repetition of the ague-like fit. I use the word *ague-like* as a brief way of characterising the attack, which always consisted of three distinct stages—cold, hot, and sweating—but not as implying malarious fever. The pulse was 88, natural in tone; the thirst and fever appeared to have vanished. 8 P.M. Nurse reports that about 7 P.M. an ague-like fit had taken place, but milder in all its stages than the last one.

July 23. 11 A.M. The pulse is 95; the temperature, 99.6°.

July 24. 11 A.M. No ague-like fit since the 22d, 7 P.M. Pulse is 104; temperature, 100°; tongue rather coated in the centre; edges clean.

July 25. 4 A.M. I was sent for, as it was thought an attack was again coming on. I gave quinine, six grains, and the rigor and hot stage were very brief, but the perspiration was profuse. 11 A.M. Slight rigor apparently checked by quinine, three grains, followed by slight sweating. 12 noon. The face is now flushed and congested, but not distressed; the patient is suffering from slight cinchonism. The body is perspiring freely. The tongue is slightly coated, and the patient complains of thirst. The pulse is 128; the temperature, 103°. 4 P.M. Rigor came on, but the attack apparently aborted on a dose of nine grains quina. Pulse is 140. 10 P.M. No rigor since 4 P.M. Pulse, 102; aspect comfortable.

July 26. 12.30 P.M. Nurse reported rigor and sweating at 9 A.M. Pulse now 108; temperature, 101.6°. 7 P.M. Made a hearty dinner at 2 P.M. At 4 P.M., thinking a rigor, &c. was coming on, she took quina, six grains; vomiting ensued, and then a short rigor and sweating.

July 27. 11 A.M. Has slept well, and had no rigor. Pulse now 116; temperature, 102°. Complains of thirst; tongue is dryish, with a thin coating along centre; edges natural. Patient thinks herself better. 3.30 P.M. Pulse now 108. 9.30 P.M. Nurse reports a rigor and sweating about 6 P.M., but not very severe. Pulse now 140; temp. 106°; the skin is sweating profusely.

July 28. 11 A.M. Pulse now 128; temperature, 104°. The patient complains of pain, on moving her leg, in the left gluteal region. The precise spot is difficult to localise, as pressure does not increase the pain; but it is felt on attempting to turn over from the back to the side. The hip-joint is perfectly free; the pain seems to be just where the sciatic nerve passes from the pelvis on a level with the tuber ischii. It does not extend upwards and inwards towards the sacro-ischiatic joint. The patient says she used to have pain in the same place previous to her confinement, especially on going down-stairs. The abdomen is flat, and free from pain; per vaginam the uterus is natural for the post-partum condition; the secretion healthy. There is no mischief in the femoral region.

July 29. 11 A.M. Pulse now 114; temperature, 100°. Nurse reports an attack at 4 A.M., and that the bowels acted during the rigor. 6 P.M. Dr. Ogle met me in consultation. Diagnosis: blood-poisoning. Treatment: R. Quinæ, gr. ij.; tinct. ferri perchl. ℥20; *ter in diem*. Diet generous.

Up to this time quina, three grains, had been given three times a day, and a double or triple dose on the advent of the ague-like fit; but,

as has been repeatedly observed in pyæmic cases, though the large dose of quina may have caused the 'fit' to abort, it did no permanent service, and perhaps added to the patient's discomfort by causing cinchonism.

July 30. 10 A.M. Pulse now 120. Rigor an hour ago; now sweating.

July 31. 10.30 A.M. Pulse, 150; temperature, 104.4°. Has had two fits of rigor, &c. since 8.30 A.M., and is now sweating profusely. 7.30 P.M. Pulse, 112; temperature, 100.8°. No rigor since the morning. There is some abdominal distension, but no pain on pressure. To have a laudanised poultice.

Aug. 1. 11.30 A.M. Nurse reports rigor, &c. at 9 P.M. yesterday, and again at 9 this morning; that the patient had a restless night, and that on moving she screamed with pain. Pulse now 120; temperature, 108.2°. The patient, on attempting to turn over, complains of sharp stabbing pain at left gluteal region about the spot indicated above, but nothing distinctly can be made out on examination except some pain caused by pressure on the spot, which ceases on taking away the finger, and is most easily evoked by movement. 8 P.M. Pulse, 136; temperature, 108.4°; is now sweating profusely; the rigor began about an hour ago. Seems to have less pain on attempting to turn from her back to her side than at the morning visit. Complains that the bed-pan, when in use, causes pain—pressing on the painful spot. The abdomen is flat and not distended.

Aug. 2. 11 A.M. Pulse, 113; temperature, 98.8°. The patient says she suffered sharp spasmodic stabbing pains at the seat of pain, coming on momentarily for the space of an hour, during the night; had no rigor, but profuse sweating during sleep. 8 P.M. Pulse now 126; temperature, 101°. Had a slight rigor at noon.

Aug. 3. 12 noon. Pulse now 120; temperature, 99.2°. 9 P.M. A rigor, &c., but not severe.

Aug. 4. 11 A.M. Pulse now 110; temperature, 99.2°. Slept well, and looks better.

Aug. 5. 12 noon. Pulse now 124; temperature, 102°. Had a restless night, but no rigor, and the nocturnal sweating, which has been constant every night and profuse, whether preceded by rigor or not, seems diminishing in quantity. 5 P.M. Slight rigor, &c.

Aug. 6. 11 A.M. Pulse now 120; temperature, 99.8°. Slept well; nocturnal sweating persists.

Aug. 7. 11 A.M. Pulse, 120; temperature, 102°. Slept well; the sweating is chiefly limited to the face and upper half of chest. Has had no rigor.

Aug. 8. 11.30 A.M. Pulse, 100; temperature, 98°. There was profuse sweating during the night, which diminished towards morning. The patient has less pain on movement, and says she feels better.

Aug. 9. 11.30 A.M. Pulse, 100; temperature, 99.4°. Nocturnal sweating less profuse. Pain at gluteal region seems to have shifted nearer sacro-ischiatic joint, but is much less acute. Tongue clean; bowels have acted naturally; urine normal. To be moved to a bed in the next room for a few hours. Henceforward the constitutional improvement steadily, though slowly, progressed; the sweating gradually lessened; there were no more rigors, and at the end of a week the patient could

stand by holding to the bed-rail with her hands, but she could not walk down-stairs until Sept. 23.

Sept. 25. The pain is located in the same place as at the first, but it is not severe, and is only evoked on making certain movements, such as turning over on to the right side from the supine position, or, when standing on the right leg, she thrusts the left one backwards. The pelvic and hip-joints are perfectly free. The general health is fair; there is no uterine malaise; the catamenia have occurred twice normally since the confinement.

Remarks. Suckling was stopped on July 25th, not from failure of the supply, but from fear lest the nutrition of the infant might be interfered with by the febrile condition of the mother. The milk was secreted for two days longer, and the breasts were drawn to relieve distension, and gradually the supply ceased to be secreted. The lochia ceased gradually in the usual way; but there was a return afterwards, on three occasions, at intervals of two or three days, of a blood discharge enough to use up one napkin each time.

On comparing the pulse and temperature, it will be seen that, though a quick pulse and high temperature were co-existent, they did not correspond very closely.

July.	23	24	25	25	25	26	27	27	27	28	29	30	31	31
Time.	A.M. 11	A.M. 11	M. 12	P.M. 4	P.M. 10	M. 12.30	A.M. 11	P.M. 3.30	P.M. 9.30	A.M. 11	A.M. 11	A.M. 10	A.M. 10.30	P.M. 7.30
Temperature.	99.6	100	103	—	—	101.6	102	—	106	104	100	—	104.4	100.8
Pulse.	95	104	128	140	102	108	116	108	140	128	114	120	160	112

August	1	1	2	2	3	4	5	6	7	8	9
Time	A.M. 11.30	P.M. 8	A.M. 11	P.M. 8	M. 12	A.M. 11	M. 12	A.M. 11	A.M. 11	A.M. 11.30	A.M. 11.30
Temperature	108.2	108.4	98.8	101	99.2	99.2	102	99.8	102	98	99.4
Pulse	120	136	113	126	120	110	126	120	120	100	100

Although the patient suffered from prostration and marked adynamic nervous symptoms during the fever, yet happily these, though sometimes grave, were not permanent, but diminished in severity as the case proceeded. A fair amount of food and wine during each twenty-four

hours was taken. The quinine and iron mixture, which was continued throughout, the dose of tinct. ferri perchl. being raised to m30, was well digested. Occasional flatulence was readily relieved by a draught containing magnesia, bismuth, and ginger. During the first four days of the fever a narcotic draught of morphia and chloral was given at bedtime, but was afterwards discontinued, as it did not appear to check the rigor or the perspiration, and the patient slept sufficiently well without it. When the sweating became pronounced, the patient was bedded in blankets, and was more comfortable than in sheets.

After looking over the various text-books, I have failed to find a parallel case described. Ramsbotham, under the head of ephemeral fever or weed, describes the ague-like fit exactly as it occurred in the present example, but says that the fever does not exceed twenty-four hours' duration. Murchison, however, *Med-Chir. Trans.* vol. xli. p. 222, classes ephemeral fever as a continued fever, and defines it, 'febrile symptoms lasting for a few days (one to ten), and subsiding with some critical discharge.'

Copland, in his *Dictionary*, says that puerperal ephemeral fever or weed may assume an intermittent, a remittent, or a continued form.

M. Hervieux, *Traité clinique des Maladies Puerperales* (1870), says, p. 643: 'If we find in a puerperal woman a collection of phenomena which can only be explained by internal phlebitis—if, finally, the whole train of symptoms disappear without our having been able to fix on any other morbid cause—may we not legitimately consider that phlebitis has occurred, ending in cure? I have often met with cases which, two or three days after labour, were seized with repeated rigors, then intense fever, without any abdominal pain or lesion of any organ accessible to our means of investigation. These patients have presently shown the alteration of features, the gastro-intestinal derangements, the adynamic and nervous phenomena, which experience teaches us are significant of internal phlebitis. I have been very anxious as to the result, which has, nevertheless, proved favourable.' He thus describes the symptoms of phlebitis: 'Rigor followed by fever. The pulse

acquires from the first a rapidity that only ends with the disease. The skin remains hot, burning, dry, and is only covered with abundant sweat at the time of suppuration, or on the approach of death. In the latter case, the sweats are clammy and cold.'

Now, though the symptoms already detailed do not exactly coincide with M. Hervieux's sketch of phlebitis, yet there seems to be some ground for assuming that the case was one of internal phlebitis. I think it possible that sub-acute metritis occurred, evidenced by the repetition of a blood-discharge recurring after the regular cessation of the lochia, and that phlebitis of some vein followed. The result of such internal phlebitis is perhaps found after death in the phlebolite, not uncommon in veins connected with the uterine plexus; indeed, much more common than a corresponding history of constitutional disturbance, which in the present case I suppose to have been due to infection from a partial melting of the preliminary clot. The fortunate issue may encourage one to give a more favourable prognosis in similar instances than puerperal blood-poisoning is usually credited with.

XII. ILLUSTRATIONS OF SOME OF THE MORE UNUSUAL FORMS OF DISEASE OF THE ABDOMEN, WITH COMMENTS ON FISTULOUS OPENINGS THROUGH THE WALLS OF THIS CAVITY.

THE SUBSTANCE OF TWO CLINICAL LECTURES.

By JOHN W. OGLE, M.D. OXON.

IN the present and the following clinical lecture I propose, gentlemen, to bring before your notice and to compare some interesting cases of disease of the abdomen which have come under my care in the Hospital wards. They may appropriately be taken into consideration along with those cases of the rarer varieties of morbid growths, swellings, &c. connected with the organs situated within the abdominal cavity, which I recorded in the second volume of our *Hospital Reports* (see p. 345), the series of which I hope yet to complete from our Hospital records. In the first place, I will adduce two cases of phlegmonous abscess connected with the abdomen which have occurred comparatively recently—one of them only a few weeks ago; subsequently, I will relate to you certain cases of fistulous communication between the intestines and the surface of the body. All of these cases presented points of great interest, partly from their being of unusual occurrence, and partly from their diagnosis being attended by a certain degree of difficulty.

To commence with the cases of abscess:

CASE I. *Abscess in the anterior wall of the abdomen—Evacuation by operation—Recovery.*

Caroline P., æt. 20, a kitchen-maid, was admitted March 11th last. She was pale and evidently very weak, but she stated that she had always been in good health, never having had any serious illness or

received any injury until three weeks previously, when, apparently without cause, she first began to feel great pain in the region of the epigastrium and the left hypochondrium. This was speedily followed by a swelling at the part, which, along with the attendant pain, had gradually increased ever since. During this time a degree of constipation of the bowels had existed. No rigors or sweatings had been experienced.

On admission, acute pain in the left hypochondrium was complained of, and on examination a rounded tumour was found a little above the umbilicus and a little to the left of the median line. Owing to the great tenderness of the abdomen it was impossible clearly to make out the form and outline of the tumour. The tongue was red and glazed. The pulse was small and weak, and 98 per minute. No evidence of disease of any of the thoracic organs or of the kidneys existed. I ordered an ample enema, containing castor-oil and gruel, to be passed by a long tube into the bowel, and laudanum to be applied on spongipiline externally: milk and beef-tea were ordered as diet. Much fœcal matter was got away by the injection, and on the following day (the 12th) the tumour was found to be more prominent, and could be more easily lineated. It was also more tender and painful. The free passage of fœces was encouraged by the use of doses containing the sulphate of magnesia, and, as the pulse was weak, bark and ammonia were given. Hot bran was also applied to the painful part of the abdomen, which gave very great relief—much more than the laudanum.

On the 15th, the temperature in the morning was $99^{\circ}8'$; in the evening it was $101^{\circ}8'$. On the 16th, the morning temperature was $99^{\circ}2'$, and in the evening it was $101^{\circ}6'$. On the 17th, temp. was $100^{\circ}4'$ A.M. and $101^{\circ}2'$ P.M. During these days the tumour appeared to be coming nearer to the surface, the skin was more tense, and doubtful fluctuation existed. Eggs had been added to the food.

On the 18th, the temperature in the morning was 99° . Mr. Pollock, my colleague for the week, was so good as to see the patient with me, and it was determined to pass a small trocar and canula into the tumour. This was done; and, on the appearance of pus, Mr. Pollock made a free incision with a blunt-pointed bistoury, using his finger as a director. The incision was longitudinal, and about three inches in length. Nearly sixteen ounces of thick, sanguineous, not offensive pus were evacuated. The temperature after the operation went down to $98^{\circ}2'$. Ten ounces of port-wine were given in the day, and the following night proved to be a good and comfortable one. On the next morning (the 19th) there was no pain, and the pulse was quiet; the wound also looked well. The A.M. temperature was $97^{\circ}6'$, the P.M. temperature $99^{\circ}2'$. On the 20th, the temperature was $98^{\circ}2'$ in the morning, and $99^{\circ}2'$ in the evening: patient comfortable. The quantity of wine was reduced. On the 21st, though a comfortable night had been passed and the bowels were open, yet the abdomen was more tender, and the weight of the bedclothes was not well borne. The tongue also had become brown and coated and dryish. The temperature in the morning was $97^{\circ}8'$, in the evening $98^{\circ}4'$. She was continuing the diet of milk, beef-tea, and eggs and wine. On the morning of the 23d the patient felt very ill, and had

two fits of rigor, followed by profuse sweating. She had also vomited several times, and at times had been faint. The tongue was dry and dark. The pulse was 105 per minute. The morning temperature was 108°, the evening 102°. A slight saline aperient was ordered. On the following day (the 24th) no fresh rigors had occurred, and the patient was much more comfortable. There had been some faintness, but no return of vomiting. The temperature in the morning was 99·2°, in the evening 98·4°. On the 25th she had greatly improved: there was no pain, and no rigors had occurred. The wound was healing well. The temperature in the morning was 100·6°, in the evening only 99·8°. On the 26th, temperature was 98·2° in the morning, and 99° in the evening: the abscess healing. On the 27th, temperature was 98·4° in morning, and 98° in evening; and a mutton-chop was given, the tongue being clean. On the 28th, temperature in morning, 98·2°; in evening, 97·80°. On the 27th, temperature in morning was 97°, and on the 30th quinine and iron were given: all was progressing well.

On the 2d of April no drawback had occurred: the tongue was clean, and the abscess had quite ceased to discharge. Within the last few days one or two doses of castor-oil had been required. A pint of porter was added to the diet. On the 10th the patient was much stronger and better. The tongue was clean, and bowels regular. There was no pain, the abscess had almost healed, and on the 24th it had completely healed. On the 20th some tonsillitis came on, lasting three or four days, requiring acid and bark. The patient went home quite well on the 29th.

Subjoined is a table of the variations of temperature as exhibited by the patient:

March 15, M.	Temp.	99·8°	March 22, E.	Temp.	98·4°
" E.	"	101·8	" 23, M.	"	103·0
" 16, M.	"	99·2	" E.	"	102·0
" E.	"	101·6	" 24, M.	"	99·2
" 17, M.	"	100·4	" E.	"	98·4
" E.	"	101·2	" 25, M.	"	100·6
" 18,* M.	"	99·0	" E.	"	99·8
" E.	"	98·2	" 26, M.	"	98·2
" 19, M.	"	97·6	" E.	"	99·0
" E.	"	99·2	" 27, M.	"	98·4
" 20, M.	"	98·2	" E.	"	98·0
" E.	"	99·2	" 28, M.	"	98·2
" 21, M.	"	97·8	" E.	"	97·8
" E.	"	98·0	" 29, M.	"	97·9
" 22, M.	"	97·6			

CASE II. *Abscess in the anterior wall of the abdomen—Evacuation by operation—Recovery.*

Martha M., æt. 39, a laundress, was admitted Feb. 24th, 1871. She had been married twenty-one years, and her family history was

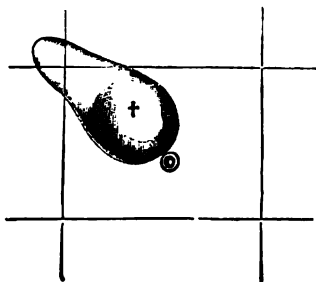
* The day of the operation.

in all ways good. She had enjoyed general good health; but five years previously she had suckled a neighbour's child for a few days which was not healthy, and had an eruption on the nates; and afterwards her nipples had become ulcerated, and also her mouth; and she had 'sore-throat,' and subsequently she has had brown patches on the skin of the neck. The hair did not, however, come off, nor had she rheumatic-like pains in the limbs. She had had twelve children born alive, of whom eight were living, and had miscarried twice (once at six months' period), and most of her labours had been easy ones; but on two occasions she had had 'floodings.' Since her illness consequent on suckling her neighbour's child, she had given birth to a child, who died at the age of five weeks; and previous to its birth she had flooded for a fortnight. Three weeks before admission, whilst weaning a child, and when she was out washing, she was suddenly seized with pinching pain at the pit of the stomach, and what she described as 'tearing pain' running through from the right loin to the inguinal region and the middle of the groin; she felt sick, but did not vomit. She left work in the course of a short time, when the pain departed; but the feeling of sickness remained. Five hours afterwards she began to vomit, and suffered great pain at the epigastrium and under the right ribs, which was aggravated by the vomiting. On the following day the vomiting ceased under the use of remedies, and this never returned, though she had often felt sick. After four or five days the acute pain ceased, and never recurred, but the 'soreness' remained some time; and ever since she has experienced a sensation at the right hypochondriac and right part of the umbilical region, as if she had strained herself. About nine days before admission she first noticed a swelling in the above-mentioned regions, her attention having been drawn to it by feeling a little extra soreness in that part, which caused her to press her hand on it. She was of opinion that the swelling has only slightly increased in size since. She did not remember having ever strained herself, though she had had very heavy lifting and other work to do for three days before her illness commenced, when, as before said, she was also nursing her baby. She had lately been losing flesh, and not been living very well. For nine days before admission she had been very low, lost her appetite, 'felt hot and dry,' and been 'very yellow;' but had experienced no pain, excepting over the swelling. During this time the urine, though of natural quantity, was dark, thick, and offensive, and, as she observed, 'like anchovy sauce when it stood.' At no time had there been actual shivering, but she often had 'a kind of a chill in the skin,' after which she became hot, and the tongue and mouth were dry and sore. Headache had not been complained of. For a few days before admission the pain in the region of the swelling had been so great that she could not lie in bed.

Symptoms on admission. Had a very cachectic yellowish look; the face being thin, and having an expression of anxiety. The conjunctiva of the eyes were rather yellow, and the skin of the neck presented several white spots, corresponding to what had been the brown patches before alluded to. She had very great pain in the abdomen, below the cartilages of the right ribs and towards the epigastrium. This prevented her lying down long on her back, and she was obliged to seek relief by

sitting up and leaning forward. The pulse was 120; feeble, but regular. She had no appetite, but suffered from thirst. Tongue red, with prominent papillæ; appears dry to herself, but is moist to the touch. The various thoracic organs appeared to be healthy; the urine was natural.

On examining the abdomen a tumour was found, occupying the right upper part of the umbilical region, and extending into the right hypochondriac region; it was most prominent at its inner part, *i.e.* towards the umbilicus, and gradually was reduced in a direction upwards and outwards. It presented a distinct sense of fluctuation, and the skin covering it was hot, and slightly red. At the upper and outer part, the dulness on percussion which it presented was continuous with that of the liver, which was itself also enlarged. The swelling was entirely irreducible, and obtained no impulse from the efforts of coughing, when it only 'heaved forward.' The skin was found to glide over a portion of it; and around the actual tumour itself considerable hardness of the parts existed for about one inch and a quarter, forming a roughened and somewhat nodulated base. The tumour was slightly tender only when touched at its upper part, but extremely tender at its apex and three quarters of an inch around it. On inspiration, the tumour did not descend, or in any way alter its position. The right rectus muscle was tense in its entire extent. She was placed on milk diet, with custard-pudding.



The woodcut represents the shape of the tumour, and its relation to the umbilicus. The cross indicates the most prominent and tenderest part.

On the following day (the 25th) the bowels had been open, and the evacuations were in all respects natural. Quinine was given three times a day, and a bread poultice applied over the region of the tumour. 26th. Less well and very low-spirited to-day. There is pain over the region of the liver, and she has had a catching pain in the right side of the thorax during part of the night, which after a time disappeared. The tongue was very red. Pulse, 100. Twenty-four ounces of natural urine had been passed in twenty-four hours. The tumour was more prominent, and the hardness around it thought to be increased in extent. There was extreme tenderness on pressure over the upper part of the swelling, where the skin was slightly more tense and shining and reddened. Castor-oil was administered, and linseed poultices applied to the abdomen, as there was a throbbing and burning pain in the tumour. On the 28th the evacuations from the oil were natural; the skin was moist; the tongue less red; the pulse as before. Pressure produced more tenderness; and wishing to have the opinion of Mr. H. Lee (then my colleague of the week) as to the advisability of exploring the tumour, that gentleman saw the case, and agreed to puncture it with a trocar. Before this should be done, I thought it desirable for a day or two to give the patient the iodide of potassium, with a view of ascertaining whether any of the iodine would be detected in the fluid which might

be evacuated* (whether it were cyst, or hydatid, or abscess, or a carcinomatous growth). Accordingly, five-grain doses were given three times a day; and on the following day four ounces of port-wine were given.

On the 1st March the pulse was 116; the temperature, 99·1°; and on the 3d the temperature was 101·1°; on the 4th it was 99·6°; and on the 5th it was 102° at mid-day; on the 6th, 101·1°; and on the 7th, 101°. During these days the tumour had been increasing in size, and became more red and prominent; the pulse ranging from 110 to 120 a minute. The tongue was generally dry, but the skin cool and moist. Poultices with laudanum were constantly applied.

At 4 A.M. of the 8th diarrhoea came on, and this caused diminution in the throbbing of the tumour, which was very tense and prominent; more reddened at the outer part, where it was also harder, but more prominent and fluctuating at the inner part. The patient complained of 'coming over in flushes,' but not otherwise of being feverish. The temperature was 102·2°, and pulse 124 per minute.

A chalk-and-opium mixture was given in place of the iodide of potassium; and at 2.30 P.M. Mr. H. Lee opened the tumour, making a long incision. About four ounces of rather offensive purulent fluid, mixed with a considerable amount of blood, were evacuated. Two small blood-vessels which had been divided had to be tied. The fluid which had been let out by the trocar consisted partly of a quantity of semi-transparent glairy material, and when examined microscopically was found to contain much granular substance and broken-down fibrin, but no hooklets of the cysticercus, &c. were met with, and no bile, or shreds of liver-tissue. When examined chemically it was found not to contain iodine. The wound was covered by carbolic shellac plaster, and cold poultices were applied. An hour after the operation the patient complained of but little pain, but was somewhat feverish. In the evening the temperature had lowered to the natural standard. On the day after (the 9th) the patient had no pain, and the swelling of the abdomen was much less. She had had a comfortable night, and the diarrhoea had ceased. On the 10th the patient's aspect was greatly improved. The pulse was 96; the tongue clean and moist; the temperature, 98·8°. The tumour was scarcely perceptible, and the wound, which discharged a little, was not inflamed. Quinine was ordered twice a day; a mutton-chop and rice-pudding allowed instead of the fish and custard-pudding. On the 11th, all going on well, Mr. Lee exchanged the shellac applications for hot poultices; the wound discharging a brownish purulent fluid. On the 15th Mr. Lee probed the wound, and stated that it appeared to him that it possibly communicated with the tissue of the liver. Porter was allowed, and the patient went on well; the wound contracting, the patient's looks improving, and the temperature keeping between 98·5° and 99°. The patient from time to time had some pain in the abdomen apparently from flatus, especially after eating, requiring aperients. On the 18th she was allowed to leave her bed, but this proceeding was followed by nausea and some palpitation. The tongue was, however, clean and the pulse regular (90 per minute), and no pain was

* I shall allude to this use of the iodide of potassium at p. 146.

complained of. The urine remained quite natural. Nothing of note further occurred. The pulse came down to 85, the patient walked about the ward without pain, and the discharge daily diminished. She went home on March 29th, some thickening of the parts where the tumour had existed still remaining, and the wound healed well.

When she left there had been no return of the catamenia since the birth of her child, a period of eight weeks.*

In collating the general circumstances of the above two cases they will be found to present certain points of a similar character, but in many respects they are dissimilar.

In the first place, they are alike, inasmuch as both the patients were females, and in both cases admission into the Hospital occurred at a period of three weeks after the onset of symptoms.

In both instances the illness began with pain at the epigastrium and hypochondriac region, which was greater towards the left side in Case I. and towards the right side in Case II. In both the pulse on admission was rapid and the tongue red and glazed; a condition very frequently found to be attendant on the formation of pus in connection with the abdominal organs; but in neither case was there a history of rigors or sweating—a particularly interesting clinical fact—nor was crepitation discovered in the swellings at any time. In Case I., however, we have no record of vomiting having occurred; a symptom which existed in the second case.

To point out greater differences between the two cases, it is to be noticed that in the first case the patient had previously been in good health, and presented no complication of disease; whereas in the other one the patient was evidently very cachectic, and had no doubt incurred a syphilitic taint in a somewhat unusual manner. This was indicated by the ulcerated nipples, sore-throat, and eruptions on the skin, which followed the nursing of the diseased child, and by the tendency to uterine hæmorrhage and abortion by which the patient was affected.† More-

* A reference to this case has been made in the 'Hospital Reports' of the *Lancet* for April 1, 1871.

† In passing, I will here mention a curious fact, which I have lately had related to me by Dr. Kingsford of Upper Clapton. It was the case of a lady who had three times at the seventh or eighth month aborted after

over, the yellow condition of the skin, the condition of the urine, and the pain at the right side and under the right hypochondrium, all pointed to the existence of some congestion or other morbid condition of the liver.

Both cases were alike in that they were attended by a high temperature of the body, which was carefully noticed and tabulated in Case I., and found to present pretty regular evening exacerbations; and in both cases it is recorded that quickly after the operation there was a marked lowering of the temperature. In neither instance had the evacuated pus any stercoraceous odour.*

As regards the exact condition and nature of the swellings, in both cases they were recognised as abscesses; and the question whether or not in either case the abscess was connected with suppuration of a hydatid cyst was uppermost in one's mind; and if so, whether the liver would not be found to be the seat of the abscess. The supposition that possibly external force or injury might have had something to do with the formation of the swellings would be equally applicable whether they proved to be caused by a phlegmon or by suppurating hydatid cysts. The question of the causation of hydatid formation by injuries is considered by Dr. T. Thompson, in the *Transactions of the Medical Society of London*, new series, vol. i. (see p. 161), in connection with a case to which I shall allude at p. 155. Dr. Thompson, referring to this supposed causation of hydatid cysts, quotes cases from

having great pain like sciatica down one or both legs. In a later pregnancy she was treated at the fifth month by half-dram doses, three times a day, of iodide of potassium; and under this treatment her health recovered, owing to her now getting sleep and being able to take a proper amount of food. At the eighth month a dead fœtus was born, which was the subject of a syphilitic eruption, and the placenta was diseased. When convalescent she resumed the treatment, the dose after six weeks being reduced to ten grains three times a day, which was continued for ten months. Shortly after this she wrote to Dr. Kingsford saying that she had not had the least return of pain, and that she had quickened and was going on well; and she is now looking forward to her confinement.

* Even if there had been any stercoraceous smell, this would not have been a proof of the abscesses having communicated with the intestines, as it has been shown that abscesses of the abdominal parietes evolve stercoraceous odour in proportion to their proximity to the large bowel. On this subject see the paper by Dance in the *Archives de Méd.*, alluded to at page 147.

Corvisart, Leroux, and others (*Journal de Médecine*, tome i. pp. 21 and 31), and one from the practice of Mr. Stanley.

It will be seen that though both of the cases which I have related were recognised as abscesses, the abscesses presented, nevertheless, points of difference in their character.

Thus, whilst in Case I. the swelling on admission, which was painful when handled, was a little above the umbilicus and a little to the *left* of the median line, and only gave indication of *doubtful* fluctuation after six or seven days, the skin covering being more tense, in Case II., in which great pain was experienced below the cartilages of the right ribs and towards the epigastrium, the swelling was found to occupy the *right* upper part of the umbilical region, and extended into the right hypochondriac region, being most prominent at its inner part. It also at the time presented a distinct sense of fluctuation, the skin covering it being red and hot. In Case II. the abscess was much smaller than in Case I.; for whereas it contained only four ounces when opened, sixteen ounces were let out of the abscess in Case I.; the phenomenon of fluctuation was, nevertheless, much more evident in Case II. than in its fellow. Moreover, around the actual tumour considerable and deep-seated hardness of the tissues existed. It was found also that the skin could be made to glide over a portion of the tumour, which on deep inspiration did not descend or in any way alter its form.*

* In passing, I am desirous, à propos of the general question of diagnosis of abdominal tumours—very often a most difficult one—to direct your attention to one or two accessible sources of information on this subject. Thus you will read with advantage a little paper communicated by Dr. J. Latham in 1806 to the *Medical Transactions* published by the College of Physicians (see vol. iv. p. 47), in which are interesting and practical observations on diagnosis of enlargements of the liver from induration of the pancreas, and consequent pressure on the stomach and hepatic ducts, and from biliary concretions, and from disease of the ovaries, in all which cases icteric symptoms may be occasioned. In the same volume (see p. 329) Dr. Latham draws attention to the diagnosis between lumbar abscess on the one hand, and disease of the ovaries, of the bladder and intestinal canal. He remarks that he had seen three cases in which matter formed in the loins, and accumulated as a chronic abscess within the abdomen, and ‘made a passage for itself through the *vagina*,’ all of which did well. He alludes to the work of Mr. Abernethy on lumbar abscesses. In the new French dictionary already quoted (vol. i. p. 96) are

And now, as respects the *seat* of the abscess in each case, was it originally formed in the walls of the abdomen (subcutaneous tissue or muscle), or in connection with one of the abdominal or thoracic* viscera, or with any portion of

also some useful remarks on the diagnosis of inflammation of the umbilical region of the peritoneum and phlegmon of the abdominal walls. Professor Oppolzer communicated some extensive observations on the diagnosis of tumours of the abdominal walls, in the *Wiener Med. Wochenschrift*, in the early part of 1862 (see a compendium of them in the *British Medical Journal* for May 10th, p. 493). Directions are given as regards determining whether an abdominal tumour be situated in the abdominal wall or in the cavity; and whether, if in the walls, it be in front of, among, or behind the muscles; and in the case of abscesses in the abdominal walls, whether they are situated in the subcutaneous tissues or deeper, as in the sub-fascial tissues, or whether they have reached the part by burrowing (*senkungs abscessen*), or whether they have arisen in inflammatory affections of the abdominal organs, or in morbid growths from them. New formations also in the abdominal walls are considered as respects their diagnosis. You will, moreover, find observations to the point in Dr. Ballard's little work on the *Physical Diagnosis of Diseases of the Abdomen*; and in Dr. Habershon's work on *Diseases of the Abdomen* (see chap. xvi.). Alluding to diagnosis of abdominal swellings, I would refer you to a case in veterinary pathology, in which what proved to be a large abscess in the abdominal parietes had been mistaken for a 'ventral hernia.' The case is quoted from a French source, in the *Edinburgh Veterinary Review*, 1862 (p. 485). Dr. MacLaren has also related to the Edinburgh Med.-Chir. Society a case in which pericæcal abscess simulated strangulated inguinal hernia. Nine months before some omentum had descended, dragging down the cæcum probably, and distending the parts about the inguinal canal, and probably determining the position of the purulent collection, which was set up eventually by attempts to reduce the incarcerated gut. As symptoms of strangulated hernia existed, though vomiting was absent, the operation was proceeded with, when a gush of foetid pus came away. In the discussion on the case at the Society (see *Edinburgh Medical Journal*, vi. 1861-2, p. 1118) Mr. Spence spoke of having seen a case of pericæcal abscess forming a tumour in the position of a hernia, and observed that he had seen cases where the pericæcal abscess 'had opened spontaneously, where ulceration of the gut and fæcal fistula had resulted, and where a cure was not effected for months.'

* It may seem strange to look out for such a contingency; but there are on record cases of abscesses within the *thorax* opening through the abdominal walls. Thus, in the *London Medical Gazette*, vol. xxx. p. 532, the case is related of a man who was the subject of an enormous enlargement of the left side of the abdomen, which commenced below the left ribs, and which was originally treated as splenitis. Eventually it proved to be an abscess in the lung, which pointed and discharged below the umbilicus, having made way between the abdominal and intercostal muscles. The patient died, after profuse purulent discharge, with hectic. During the formation of the abscess no chilling or shivering had been experienced. Again, Case No. II. in Dance's paper, to which I have alluded at p. 147, is one showing the exit of an enormous quantity of pus formed in the thorax, consequent on pleuro-pneumonia, and finding its way through the abdominal walls in the right hypochondrium, below the ribs. Brichteau has described in the *Archives de Méd.* (tome xxx. p. 322) the case of a girl who had a vast purulent accumulation in the areolar tissue, between the peritoneum and muscular wall of the abdomen, which communicated with abscess of the lung by a perforation in the abdomen.

the osseous or cartilaginous* system, or in the general peritoneal cavity? These were questions which very naturally arose as matters of clinical and pathological interest, though of course they were immaterial as influencing treatment;† seeing that whatever their place and mode of origin, their evacuation by operation was imperative.

In the first case it appeared most probable that the formation of the pus occurred neither in the substance of the abdominal walls‡ nor in connection with any viscus or bone tissue, but in connection with the peritoneum. Had there been abscess of any viscus pointing externally, it would no doubt have been abscess of the liver, which has been known very frequently to open externally, as you may see from Frerich's work on the liver (vol. ii. p. 129, of the Sydenham Soc. translations), and other books. Most likely some local peritonitis had been set up, not, as it would appear, from any outward injury, but possibly from some strain or over-exertion, by which the areolar tissue, such as the fascia propria and the peritoneal sur-

* Mr. W. Adams has described in vol. v. of the *Pathological Society's Transactions* (see p. 245) an interesting case of abscess (containing three or four quarts of pus) in the sheath of the rectus abdominis muscle, in connection with primary ulceration of the fibro-cartilage of the symphysis pubis and superficial caries of the exposed pubic bones. The swelling which it had given rise to was at one time supposed to be a psoas abscess.

† I will quote a few lines, which are of interest owing to their appositeness on the treatment of such abdominal abscess, from the *Nouveau Dictionnaire de Médecine et de Chirurgie Pratiques*, vol. i. p. 95. They are as follows: 'Mais il est rare qu'on abandonne ainsi à la nature l'ouverture de l'abcès, à cause des nombreux dangers auxquels exposerait la lenteur du travail organique. On a d'abord à redoubter que la collection purulente, au lieu de se porter au dehors, ne s'épenche dans le ventre, et ne détermine une péritonite comme j'en ai rapporté une observation. On a ensuite à craindre que l'abcès, après s'être ouvert très-exceptionnellement dans l'intestin grêle, ne donne lieu à une fistule stercorale, comme dans une observation de Treccourt: mais il y avait probablement dans ce fait des circonstances particulières qui ont donné lieu à ce résultat. Enfin on a surtout la préoccupation de voir survenir des fusées purulentes qui épuisent les forces du malade, et qui, lorsqu'elles sont excessivement étendues, peuvent, comme dans l'observation rapportée dans les *Disputationes Medicæ* de Haller, amener une diarrhée colliquative et entraîner la mort. Ainsi la crainte de ces dangers doit être faire chercher à poser le diagnostic de cette inflammation phlegmoneuse à sa première période, pour la combattre alors assez énergiquement et éviter la suppuration, et faire rechercher avec soin la fluctuation dans la seconde, pour évacuer au plus tôt la collection purulente.'

‡ Abscess in the abdominal muscles sometimes follows in cases of fever. Dr. Murchison describes such a case in vol. xvi. of the *Pathological Society's Transactions*, p. 275, resulting, as he thought, from hæmorrhage.

face, might have been lacerated; thus giving rise to irritation and inflammation, and a true phlegmon. Dr. Habershon informs me that he believes this may be the mode of origin of certain abdominal abscesses; and in his work alluded to above he says, indeed, that the most fertile sources of parietal suppuration are blows and falls. He alludes to the obscurity which may attend suppuration of the parietes of the abdomen, as it may simulate deeply-seated mischief. He observes, that 'in pyæmia and in cachectic subjects very trifling causes appear to be sufficient to lead to this disease.' At p. 539 of his work above quoted he describes a case of abscess in the hypogastric abdominal parietes simulating ovarian disease.

The large size of the abscess, though externally this was but little apparent, showed that it must have been more or less burrowing in its nature, and have had a deep origin; and the freedom from complication, and eventually the entire and direct recovery of the patient, would seem to discredit the supposition of any viscus being engaged.*

* Affections of all the viscera and glands of the abdomen are capable of giving rise to inflammation and abscess and fistula of the abdominal walls; and (by way of pointing out to you illustrations which you can easily meet with) I would refer you to the *Transactions of the Pathological Society*, which you will find in our library, for other examples. Thus at vol. xi. p. 122, is related by Dr. Coote an interesting case of abscess in the abdominal walls (which were riddled with sinuses) in connection with cancer of the stomach. At p. 221 of vol. viii. of the same *Transactions*, Dr. Murchison related another case of fistulous openings through the abdominal walls connected with cancer of the stomach. Dr. M. considered that an injury was at once the cause of the abscess and of the disease of the stomach; and at p. 107 of vol. xx. he records a case of perforating cancerous ulceration of the stomach, with abscess of the abdominal walls opening at the umbilicus. In our own museum is a preparation, presented by Mr. Cesar Hawkins, showing a large sloughing ulcer of the skin of the epigastric region connected apparently with a cyst of the liver (series ix. no. 816), which had caused during life a large fluctuating tumour, which was punctured. At p. 346 of vol. iii. Dr. Bristowe records a case of suppurative peritonitis, the result of abscess of the liver, causing perforation of the bowel and of the abdominal wall; and at p. 270 of vol. xiv. of *Path. Soc. Trans.* Mr. Gay has related a case of extensive phagedenic ulcer, with destruction of the abdominal walls and perforation of the bowel, which seems to have originated from abscess of the liver or tissues about that organ, which had to be opened artificially.

Intestinal worms may pass through the abdominal parietes by means of abscess. Of this you will find an instance recorded in the *Lancet* for 1872, p. 777; and also in the *Transactions of the Medical Society*, vol. i. part ii. 114. Perforation of the walls of the bowel by lumbrici is described by Laverne; see cases quoted in the *Sydenham Year-Book*, 1871-72, p. 153. See

Still at one time the diagnosis, and also the prognosis, were very uncertain, as it will be remembered that, on the fifth day after the opening of the abscess, a sudden change took place in the patient's condition for the worse. On that day the patient felt very ill; two attacks of rigors,

also case of tumour of the inguinal region containing lumbrici described by Botella, *Sydenham Year-Book*, 1860, p. 224.

In women, abdominal parietal phlegmon, as recorded by Dr. Bernutz in the article above alluded to (see p. 143) in the French dictionary, may be connected with an intra-pelvic purulent collection.

Thus, to mention a few out of many cases, you will find described in the Surgical Report of the Clinical Society of Guy's Hospital (see p. 90 of the *Guy's Hospital Reports* for 1846) a case of inflammation of the pelvic ligaments after parturition, 'with discharge from the groin.' In the year 1859 we had in this Hospital a patient with ovarian disease (admitted Nov. 9th) in whom the umbilicus projected, and in the course of a few weeks a serous fluid was observed to drain away from the umbilicus. This went on to a great extent until the patient died. This rupture and discharge of an ovarian sac through abdominal walls is spoken of by authors on midwifery, as by Byford and Thomas; and I would specially refer you to the case described in a modern German work, to be alluded to farther on (*Rusts' Magazin f. d. gesammte Heilkunde*, xx.1. 150), of a woman in whom, after she had ceased to menstruate, a painful tumour formed below the navel, and grew to the size of a child's head. A year later she was delivered of a full-sized child. The tumour became afterwards more painful and larger; hectic fever set in, and after seven days the tumour burst and discharged pus. The opening was enlarged, and a quantity of pus, with fourteen masses composed of hair from half an inch to two inches in length, came away. The pus and hair were found to have come from the sac of the right ovary. Mr. Burton of Lee has given me the particulars of a lady whose first confinement was natural and easy, but was followed (on the third day) by shivering and fever, and pain in the abdomen, with symptoms of mild puerperal mania. These symptoms subsided, and then a swelling formed just above the pubis, which, on vaginal examination, proved to be connected with parts of the uterine appendages. After some weeks, the swelling opened by a small orifice halfway between the umbilicus and pubis. The discharge continued for some time, and then the wound healed, the uterus recovering its natural condition. The lady subsequently gave birth to two children without any trouble.

Ovarian sacs, after being punctured artificially, may also open through the abdominal wall. Thus, Dr. Copland describes a case in which a cicatrix ulcerated and the fluid was discharged through the opening, and the patient recovered; and Dr. B. Brown described a similar case. Instances even exist of the discharge through the abdominal walls of the ovum or of portions of the fœtus in cases of extra-uterine fœtation; a class of cases to which I shall allude later on (see p. 147).

As regards fistulous perforation of the abdominal walls from disease of the glands within the abdomen, I may mention a case which I lately saw along with Dr. Coates of Pimlico of a huge tumour within the abdomen, which we looked upon as either a mass of cancer or enlargement of the deep lymphatic glands. This increased in size, became adherent to the abdominal walls, and eventually a spontaneous opening occurred, through which very large amounts of pus escaped. The patient died, but no post-mortem examination could be had.

followed by profuse sweating and vomiting, with dry dark tongue, occurred. The pulse rose to 105; and the temperature, which on the preceding morning and evening had been 97.6° and 98.4° respectively, was registered at 103° in the morning, and 102° in the evening. Some faintness continued from time to time during forty-eight hours; but in twenty-four hours the gravest symptoms had subsided, and the 'storm' had passed over. All this at first made us think that we were going to lose the patient, and that some serious complication existed; but the tumultuous state fortunately subsided, and the patient recovered without further interruption.

The second case presented more ambiguity as to diagnosis. The contemporary enlargement of the liver (so that the dulness of this organ and of the abscess was continuous) and the exact situation of the pain and swelling, taken in connection with the condition of the skin and urine, at first sight pointed to the biliary apparatus as possibly being implicated in the suppuration.* Still, as the course of events did not bring to light any positive evidence of this, as the evacuated fluid showed no admixture of bile, and as, moreover, the patient had been subject to great straining of the abdomen from lifting heavy weights and other work, whilst at the same time she was nursing, and also in a cachectic condition—it does not seem unreasonable to surmise that the affection, as in the former case, had a mechanical origin.

With regard to the use of iodide of potassium in Case II. (to which I alluded at page 137), it was not given with the idea of procuring relief or contributing to treatment, but with a view of testing if the iodine passed into the fluid of the abscess, cyst, or whatever the tumour was. At the time I had in my mind the case related by Dr. Murchison at page 125 of vol. xviii. of the *Pathological Society's Transactions*; in which, from a patient

* I have seen several cases in which large accumulations of pus have formed between the liver and abdominal parietes in connection with abscesses (in some cases small but superficial) of the liver substance. Such an one I have described in the series of abdominal swellings (alluded to at p. 133), recorded in vol. ii. of the *St. George's Hospital Reports*.

who had been taking large doses of the iodide previous to the operation, fluid was removed from an hydatid tumour of the liver, but no traces of iodine were found in the fluid; to which case he had alluded in his notes to the translation of Frerichs, vol. ii. p. 251, *à propos* of a statement that Hawkins believed that iodide of potassium had the power of passing from the blood into hydatid cysts, and killing their inhabitants.

I need hardly say, that in the above cases there was no doubt, by reason of the great pain, and their general character and appearances and rapid growth, that the swellings were not merely 'cysts,' such as are formed sometimes in the abdominal walls or become connected with them.*

The above cases illustrate the tendency which purulent collections within the abdominal cavity have to seek their way outwardly by 'pointing;' and I will, in further illustration of this tendency, quote one or two other cases from different sources.

In the first place I would refer you to two papers in the French *Archives générales de Médecine*, which bear on the subject. The first was published by Dance in 1832 (see October number), on the foetid and stercoraceous odour which certain abscesses developed in the thickness of the abdominal walls possess, in which paper four cases of such abscesses are related. The second paper is one by Bernutz, in the numbers for June and July 1850, on phlegmons of the anterior wall of the abdomen. He recounts nine cases, and discourses considerably on the symptoms of the affection and the interesting question of diagnosis of acute inflammation of the cellular tissue which line the peritoneum (the fascia propria), and dwells on the analogy

* In passing, I will draw your attention to a specimen of sero-cystic tumour which we have in our museum (catalogued as no. 18 in series xvii.), which was removed from the anterior wall of the abdomen. The microscopical character of the parts composing the tumour, and also the general conditions, are given in the catalogue. On the subject of cysts in the substance of the abdominal walls, you may profitably refer to a section in Dr. Ballard's work, which I alluded to at p. 142 (foot note), on 'encysted disease' in these parts. You will there find quoted an instructive and remarkable case, described by Dr. Scott in vol. xl. of the *Medical Gazette*, in which the diagnosis was quite astray.

between these phlegmons and those of the iliac fossa connected with affections of the cæcum.

In vol. ii. of the *Medical Communications*, published in 1790 (see p. 46), is related, by Dr. Kite, the case of a woman with prolapsus uteri, who, subsequent to its reduction, suffered an attack of peritonitis; after which 'a fluctuation' was evidently perceptible, a small 'vesication' appeared on the navel, and the next day there was an immoderate discharge of foetid acrid matter from a small opening in the umbilicus, just large enough to admit the head of a probe. This continued about twelve hours, in which time the quantity of matter evacuated amounted, as nearly as I could guess, to ten or twelve pints.* Afterwards the probe could be passed in a perpendicular direction up to its point, and also under the integuments and apparently the abdominal muscles, towards the anterior part of the crista ilii. Next morning, when between ten and twelve pints were discharged, it was impossible to pass the probe perpendicularly as before—it would only pass towards the ilium; so that it could not be determined whether the disease was or was not 'in the cavity of the abdomen.' The quantity of pus passed during a whole week was very great, and after that it began to cease. The patient ultimately quite recovered,* and round the umbilicus, for the space of two inches, a complete opening through the abdominal muscles was left down to the peritoneum, but the integuments were very sound. In the same volume from which I have quoted the above, is mentioned also, by Dr. C. Smyth, of a patient in the Middlesex Hospital, 'whose belly, after a puerperal fever, inflamed and burst at the navel, when a large quantity of a fluid having more or less of a purulent appearance was discharged at the wound.' The tendency to the opening through the abdominal parietes of abscesses resulting from puerperal peritonitis was noticed by Hunter, as may be seen by a

* It was observed that, alternating with the discharge of pus from the opening in the abdomen, there was a free expectoration of what appeared to be pus from the lungs by means of cough, which was set up. The subject of vicarious secretion of pus is one of much interest and some difficulty. Among others, Dr. Moore has related a case in the *Dublin Hospital Gazette*, August 1859.

letter of Cruikshank quoted in the Catalogue of the Museum of the Royal College of Surgeons (see vol. iii. p. 39). Mr. Cruikshank refers to Hunter as describing in some lectures the above tendency, and alluding to the fact of his having opened abscesses in the groins of women a short time after delivery, which had begun with all the symptoms of puerperal peritonitis, and the patients recovered.

Purulent collections may also occur in the peritoneal cavity *after typhoid fever*, and find a vent spontaneously from the surface. Thus Mr. Ewens of Cerne Abbas, a former pupil here, has told me of the case of a little girl, who, after a severe attack of typhoid fever, instead of progressing to ordinary convalescence, complained of much pain in the abdomen, which became swollen and fluctuating, and after a time very distinct pointing occurred at the umbilicus, when by means of a common lancet he let out several pints of pus. The patient quite recovered. May not the peritonitis in this case have been connected with ulceration of the intestines?*

For a case of abscess forming in connection with peritonitis, the result of ulceration of the bowel in typhoid fever, and opening by a perforation through the abdominal walls, I would refer you to a case which occurred in Sir W. Jenner's practice.† The patient, a boy aged thirteen, was admitted into hospital with a small opening just below the navel, discharging greenish-yellow foetid pus, *through which also food passed*. It seemed that he had had typhoid fever, and was allowed to get up and eat ordinary food too early.‡ Soon after taking a drastic purge, a swelling formed in the abdomen, which eventually burst 'with a report like a popgun,' as was said. After coming into the hospital, a drainage-tube was inserted into the opening, through which the discharge passed, gradually diminish-

* Dr. Goodridge has described, in the *Lancet* for 1865 (see p. 255), a case of perforation of the bowel occurring on the eleventh day of fever.

† The *Lancet* for January 2, 1869, p. 9. The reporter observes that perforation of the bowel in typhoid fever is computed to occur in about 13 per cent of cases of the disease terminating fatally.

‡ In one of my Hospital cases of typhoid fever death occurred from aggravated ulceration of the bowels during convalescence, apparently brought about by a quantity of 'currant-bun' which the friends had smuggled in to the patient.

ing. This was eventually withdrawn, and the wound was healing. Lung mischief was then discovered; and how the case ended is not stated. It was assumed, however, that the boy had recovered from the abdominal mischief.

Cases also of *extra-uterine foetation* and other varieties of unwonted pregnancy have occurred, giving rise to accumulations of pus which have opened through the abdominal walls spontaneously. Thus in the *Pennsylvanian Transactions*, 1867 (see *American Medical Journal*, 1868, p. 231), was described by Dr. Levan the case of a young married woman who had symptoms which were at first treated as ascites, 'the abdomen reaching an alarming size.' Finally, an opening through the walls of the abdomen, about half an inch below the umbilicus, and to the right of the median line, occurred spontaneously, and gave rise to a discharge of about a gallon of yellowish pus-like fluid. The opening now somewhat closed, but remained as a running sore for upwards of thirty years.

Professor Hecker, in his contribution to the history of such pregnancies in the *Monatsschr. f. Geburtskunde*, Feb. 1859 (for reference to which paper and to some other cases I am indebted to Dr. H. Fly Smith), speaks of 76 cases of abdominal pregnancy, in 15 cases of which the ovum was expelled through the anterior wall of the abdomen.* You will find in volume xxxi. of the *Edinburgh Medical and Surgical Journal*, p. 445, a case, quoted from the German, of the delivery of a foetus through the abdominal parietes, owing to a fall, which was followed by an inflammatory tumour in the umbilical region, which eventually broke and discharged a quantity of foetid pus; and through this spontaneous opening the foetal bones were removed. Dr. Müller, observing on this case, says: 'Nature too has her Cæsarean operation.' You will also find, at p. 515 of vol. lxiii. of the same publication, the description of a case in which Cæsarean section had been performed; and in a subsequent pregnancy, at the fourth month, an ulcerated opening appeared four inches from the old cicatrix, and gradually opened transversely to

* In 28 cases the ovum was discharged by the rectum; in 17 it was 'mummified.'

it. A foetus and membranes escaped, and the woman recovered. At p. 453 of vol. xxix. is quoted from the French a case of extra-uterine pregnancy, terminating by discharge of the foetus per anum, and of pus by a suppurating tumour at the left side of the abdomen.* Dr. Maxwell Garthshore, in publishing some observations as long ago as 1787, on extra-uterine cases and on ruptures of the uterus, alludes to several well-authenticated cases in which the child had made its way piecemeal either through the ulcerated integuments of the abdomen or the coats of the intestine, with safety to the mother.

Accumulations of pus and puriform fluid in the general peritoneal cavity (or some viscus) may, however, find an outlet *through the bowel*; and the following is an illustration, which occurred some years ago in our Hospital, of what was probably a purulent collection which had formed in the general abdominal cavity (though it may have been connected with some viscus), and which found its way into some part of the intestinal tract, and thus was voided outwardly.

CASE III. *Local peritonitis—Passage of pus by the bowel—Recovery.*

Elizabeth P., æt. 28, a single woman, who was described as having had typhus fever when sixteen years of age and gastric fever when twenty years old, had been subject, four years previous to admission into the hospital, to pain in the stomach, lasting only a few days, which was thought by her medical man to be caused by gall-stones. She went to church on the 20th of January 1867, and felt chilly and was attacked by bronchitis. On the 25th she complained of pain in the stomach about the umbilicus, and was admitted into the Hospital on the 27th, at which time the catamenia were present. The tongue was smooth and glassy and red, and fissured in the centre; the skin was a yellowish hue; the abdomen resonant and rather tympanitic.

* In vol. ii. of the *Medical Observations*, New York, Mr. Bard communicates the case of a woman who had been fourteen months pregnant of an extra-uterine child, and who conceived a second time and was delivered naturally. Soon afterwards the abdominal tumour caused by the former child began to suppurate, and having afterwards opened, a foetus of the common size was extracted. And in the *Edinburgh Medical Essays*, vol. v., Dr. King related a case in which a woman six years advanced in extra-uterine pregnancy became again pregnant in the *same way*; the foetus of the second conception was extracted almost entire, through an ulcer formed in the integuments of the abdomen, and the bones of the first were passed partly by the rectum and partly by the vagina.

The pulse was 104, and there was decided dulness on percussion at the upper part of the right lung, with increase of vocal resonance. Small doses of hydr. c. creta and Dover's powder were given, and during the night a quantity of purulent matter was passed from the bowels, from which much immediate relief was obtained. Still great pain existed. Calomel and opium were given. The temperature on the 29th was only 98°, but the pulse was 108. The tongue as before. Less pain was experienced, but pus continued to be passed. On the 30th the pulse was 96; temperature, 98°. The bowels were open twice, and less pain was complained of. Vomiting for the first time had occurred. The pain declined, but the tongue remained as before; and large quantities of pus were passed from time to time. Improvement took place; the tongue became moister, and the action of the bowels unattended by pain, but the conjunctiva remained yellowish. During her illness brandy was given along with supporting diet, and laudanum from time to time to relieve pain. She was discharged recovered Feb. 18.

In the above case it is possible that some affection of the biliary passages may have set up inflammation and abscess, which found its way into the intestine. I have lately seen with Dr. Coates the case of a woman who was suffering from 'hectic,' in connection with a large accumulation of pus within the abdomen, which made itself apparent below the ribs on the left side. Fluctuation occurred at this spot, and at one time we were on the point of exploring the parts by a fine canula, or grooved needle, when the fluctuation abated. Eventually a very large quantity of pus was suddenly voided by the bowel, and the patient sank. No post-mortem examination could be obtained. Though in the locality of the kidney, the supuration, as far as could be made out by the urine, was not connected with that organ.

I will take this opportunity of reading to you the particulars of a case of abscess within the abdomen which occurred many years ago in the Hospital, and which appeared to have been unsuspected.

CASE IV. The patient, Thomas H., æt. 29, was admitted Feb. 27, 1850, suffering from pulmonary phthisis, with fœtid expectoration. Stethoscopic examination seemed to determine the existence of a large abscess in the lower part of the left lung. He died in a few days, and after death, in addition to tubercles and several cavities in the lungs,* a

* It was interesting and important clinically to find in this case that, whilst two small cavities were found after death in the upper part of the

circumscribed abscess was found, situated between the under surface of the diaphragm, the left extremity of the liver, and the lower ribs on the left side, surrounded by adhesions. No communication was found between the abscess and the lung or any other viscus.

In this case the abscess was hemmed in and protected, so to say, by firm surrounding adhesions in which it was formed. Had life not been curtailed by the lung-disease, it would no doubt have declared itself, and efforts towards evacuation, either in the direction of the surface or into the stomach or bowel, have been set up.* Whilst alluding to such fistulous communications, I would suggest to you to make yourselves acquainted with the article on the abdomen in the new French dictionary above referred to. (see p. 143), in which, at p. 128 of vol. i., are considered the various abdominal fistulæ which may occur—parietal, peritoneal, and visceral (external and internal). Among the peritoneal fistulæ are those arising from a foreign body engaged in a circumscribed peritonitis, from a local or general peritoneal inflammation, and from an ascites.† Cases related by Second Féréol (who wrote a dissertation for a thesis at Paris in 1859 on perforation of the abdominal walls in peritonitis) are quoted of spontaneous perforation of the abdominal walls at or near the umbilicus, where they are reduced to a fibrous lamella interrupted by interstitial openings.

Numerous instances of *biliary calculi* discharged from the umbilicus, and through other parts of the abdominal walls, and giving rise to abdominal tumour and abscess, are on record, and I will occupy a few minutes in calling your attention to some which you can refer to any day in our library. In 1812 Mr. Copeland described to the Royal Medico-Chirurgical Society (see *Transactions*, vol. iii. p. 191) a case in which a biliary calculus was voided from

left lung and a large one (the size of a walnut) in the upper of the right lung, the part of the lung in which during life the ear appeared to detect indication of a large abscess (*i.e.* very loud blowing with the expiration), the lung was in a state of red consolidation.

* An example of a cyst in the epigastric region opening spontaneously into the cavity of the stomach is recorded at p. 180 of the *American Medical Journal* for January 1868.

† On the spontaneous emptying of ascites through the abdominal walls, see p. 156.

an abscess above the right groin, which opened spontaneously;* and he cites Mr. Petit, who had related many cases to the French Academy of Surgery of external tumour formed by the gall-bladder, some of which had been mistaken for abscess, and were opened and proved fatal; and some of which broke externally. Mr. Robinson described to the Pathological Society (see *Transactions*, vol. v. p. 158) a case of the kind which recovered. The discharge continued nearly three months after the last calculus passed, and about thirty calculi had thus come away. In connection with the case, Mr. Robinson cites another, described in vol. xxxv. of the *Medico-Chirurgical Transactions*, in which a fistulous orifice formed near the umbilicus, and discharged pus and bile which communicated with one of the biliary ducts. In the same volume of the *Pathological Society's Transactions*, at p. 156, Mr. Simon has also related the case of a woman, æt. 60, in whom a biliary calculus discharged through an opening in the abdominal wall; and, in reference to the case, he cited two others which occurred in St. Thomas's Hospital, in which a process of discharge similar to the above had appeared to be in progress at the time of death: all cases illustrating the steps by which such discharge of biliary calculi may be effected. Mr. Simon also quoted from Andral a case of the kind which involved complete destruction by ulceration of the gall-bladder.† Dr. Murchison also, at p. 85, vol. xii., of the same *Transactions*, has described a case of fistulous orifice in the abdominal walls, opening at the umbilicus into a circumscribed cavity which communicated with the colon and duodenum and gall-bladder; and he has, in the same *Transactions*, described other cases of fistulous open-

* Dr. Cayley has described to the Pathological Society (Oct. 20th, 1874) a case in which a renal calculus was discharged through a fistulous opening in the loin; and in 1861 Dr. H. Browne brought before the same Society a case of calculus and abscess of the kidney opening through the lumbar muscles (see *Transactions*, vol. xiii. p. 181).

† As regards ulceration and other affections of the gall-bladder connected or not with biliary calculi, I would refer you to a paper of my own on 'Certain morbid Conditions of the Appendages of the Liver,' which you will find in vol. iii. of the *St. George's Hospital Reports* (see p. 177). In that paper I have described cases of biliary fistulae of various kinds, and alluded at large to the important paper by Dr. Murchison, in which he enlarges on these fistulae, including such as open on to the surface of the abdomen.

ing through the abdominal walls connected with the biliary apparatus. In his work on the liver he observes that, in medical literature and in pathological museums, there are the records or the relics of at least seventy similar cases, which, with few exceptions, have occurred in females of middle or advanced age. In vol. xli. of the *Medico-Chirurgical Society's Transactions*, he also has described a case of communication with the stomach through the abdominal parietes owing to external pressure. Dr. Moxon again, at p. 120, vol. xviii., described for Mr. Everett a case of gall-stones discharged through the abdominal wall. In this instance, the tumour, of the size of a cricket-ball, below and to the right of the umbilicus, had been mistaken at the outset by an eminent surgeon for a superficial carbuncle or abscess, the probable result of a strain. Dr. Ogier Ward has described, in the third volume of the *Pathological Society's Transactions* (p. 100), the case of a woman in whom a portion of the gall-bladder, having calcareous matter imbedded in it, was discharged externally at an orifice through which numbers of hydatids had been passed. Subsequently bile continued to be passed for a length of time. On biliary fistulæ through the abdominal walls, see also the second volume of Frerich's work on the liver, p. 525 (Sydenham Society's translations).

It is well to bear in mind, as before said, the possibility of spontaneous opening at the surface of abscesses in the abdomen connected with *hydatids*. As an excellent example of this, see the case to which I have already (at p. 140) alluded as being described by Dr. T. Thompson. In that case, the patient, a woman, was the subject of an hydatid abscess for thirty years. It began with the formation of a swelling at the umbilicus, and under the ribs of the left side (following a kick on the abdomen), *which was regarded as hernia, and for which she wore a truss*. Later on, it was mistaken for *pregnancy*. Eventually the umbilical swelling gave way, and a quantity of matter, having the colour of yolk of egg, along with hydatids, escaped. The opening healed and re-appeared, and again opened. Most probably the hydatid abscess was originally connected with the liver, judging from the results of post-

mortem examination, as hydatids were found in the liver and gall-bladder and mesentery; but still it was greatly connected with the peritoneal tissue. The author proposes the question whether the principal cyst containing the hydatid abscess might have been the 'umbilical vein reopened.' Dr. Bright, in his work on abdominal tumours, records a case in which an hydatid cyst of the liver that discharged itself externally presented a curious feature, viz. that although the patient was deeply jaundiced, neither the skin of her child whom she was suckling, nor her milk, was in the slightest degree tinged with bile. Frerichs mentions (op. cit. ii. 237) cases of hydatids of the liver opening, though rarely, through the abdominal walls or the lower intercostal spaces; and quotes a few instances from other authors, ancient and modern (Plater, Camerarius, Budd, Fergusson).

Hydatid cysts may also discharge through the *vagina* if situated in the pelvis, as seems to have occurred in a case related by Mr. J. Hutchinson (see *British Medical Journal*, Sept. 20, 1862). The hydatid cyst had probably been developed between the bladder and vagina.

In passing, I would point to the possibility of fistulous openings through the abdominal wall communicating with the kidney or bladder, and with purulent collections around those organs. For an example of such an opening between the groin and the bladder containing two calculi, one a huge one, see the *British Medical Journal* for August 13th, 1859, related by Dr. M'Ewen. The calculi were removed, and the patient recovered.

There is yet another affection to which I would direct your attention, in which a spontaneous outlet to fluid may be made through the abdominal walls; that is, ascites. This is exemplified by a case recorded in vol. iii. of the *Memoirs of the Medical Society* (p. 476), in a paper by Dr. Sims advocating the use of the ordinary lancet for opening the abdominal walls at the umbilicus in place of the trocar in the operation of paracentesis. He took the first hint to this practice, he observes, from a case of ascites, in which an old cicatrix at the umbilicus opened permitting a free passage to the fluid from within. On the least effort to

cough the fluctuation was felt under the skin, which being slightly punctured with a lancet, the whole of the fluid collected in the abdomen was evacuated.

Whilst referring to the mechanical emptying of fluid from the abdomen, and indicating that this may as well be done as in the case of the thorax, I will refer you to a case which Dr. Risdon Bennett has described in vol. vi. of the *Practitioner* (see p. 65). It was that of a man aged twenty-four, suffering from peritonitis in the Christiania Hospital, who was several times tapped, quantities of purulent fluid being evacuated. Eventually the abdominal cavity was washed out, and a drainage-tube was introduced into the abdomen, which he continued to wear even when he left the hospital, three months after its insertion, 'as there was still sufficient discharge to make it imprudent to allow the opening to close.' Dr. Bennett observes, in a letter to me on the case, that when he saw the patient, shortly before leaving the hospital, he was 'fairly well, walking out every day and eating well an ordinary diet.' In his description of the case, Dr. Bennett remarks that 'he has seen cases of extensive tubercular peritonitis where life appeared to have been considerably prolonged owing to the drainage of the effusion, by a spontaneous opening, through the abdominal walls.' He refers to the instance of a boy who was operated on for inguinal hernia; and from the artificial opening there was for some time a continuous discharge, with great improvement in his condition.

I will now pass on to relate to you the details of certain cases in which a fistulous opening through the abdominal walls had communication with the intestinal canal, both of which were under my care in the Hospital.

CASE V. *Abscess in the left side of abdomen—Opening by operation—Fæcal fistula—Death.*

Roger W., æt. 25, who had previously enjoyed good health, was admitted under my care into the Hospital October 15th, 1866. For two months previously he had felt 'a lump' at the lower part of the left side of the abdomen, and for a fortnight had been under treatment for constipation, having had no natural evacuation for ten days (although he

had taken calomel, croton oil, colocynth, podophyllin, &c., and also had several enemata, which brought away some hard fæces).

He had been vomiting a greenish fluid, and had much pain over the affected part of the abdomen; and when admitted there was a tumour in the inguinal and lumbar regions approaching the umbilicus of about four inches in extent in all directions, and he was suffering from hiccough; but there were no febrile symptoms, the pulse being 84, the tongue clean, and the skin cool. Hot fomentations were applied and a grain of opium given, and one or two enemata were administered two days after admission by means of a long intestinal tube, which was only found to pass about six inches, owing to a large mass of fæces. One enema was useless; another brought away several small lumps of fæcal matter. Late in the evening he had a natural evacuation, by which he got rid of much fæcal substance of the consistence of pea-soup; and another enema brought away still more. The consequence of all this was great relief to pain and to the sense of fulness in the abdomen. The enlargement of the abdomen, which was not very dull on percussion, appeared to correspond with the descending colon or sigmoid flexure.

An occasional dose of calomel was given, and sulphate of magnesia in the effervescing form. He was sustained by milk, beef-tea, and brandy-and-ice; and the opium was repeated from time to time. On the 17th he had two natural evacuations, but the pulse rose and the tongue became foul. Still there had been no more hiccough, and there was no vomiting until the 22d; on which day pain in the abdomen was complained of, at one time dull, at another griping; but it was not constant. On the 24th the pulse was 104, the tongue furred, and the urine high coloured, but not albuminous. Occasional enemata brought away fæces; and at one attempt the tube was passed quite above the hardness, but no evacuation followed. On the 27th the abdomen had become more tender, the tongue was very red. The tumour increased rapidly in size, and a poultice with laudanum was applied over it. On the 29th there was hiccough; and on the 30th, as fluctuation was detected, the tumour was opened at my suggestion, and some pus escaped through the opening. As so much pain was complained of subsequently $\frac{1}{2}$ grain of morphia was injected subcutaneously. The night after the operation was passed comfortably; and on the day following a quantity of liquid fæces had been discharged from the wound. On the 1st of November he passed an evacuation per anum, of natural consistence, but still a quantity of fæcal matter was voided by the wound. The tongue was more natural; pulse, 115. More pain at night required morphia injection. On the 2d he had a natural action of the bowels; a light custard pudding was allowed in addition to the milk and beef-tea. On the 3d there was no pain. The pulse was 112; the skin moist; the respirations 24 per minute; the urine deep coloured. Opium was given every six hours. On the 5th the temperature was 99°. The patient went on in the same way until the 14th, every now and then having a natural action, fæcal matter and pus passing from the wound, and the opium pills being given off and on, and brandy allowed. On the 14th it was reported that more pus than fæces was passed from the wound; and from the 12th of November to the 12th of December no

fæces were passed by the rectum, and much flatus was complained of at times. The wound continued to discharge faecal matter all the while. On the 23d of November fish was allowed in addition to former diet. On the 12th of December he passed two motions by the bowel, one being without the aid of an enema; being the first time that this had happened since the operation. He then began to eat roast meat; and egg-and-brandy had to be given, owing to increased weakness. Hiccough set in, and, in addition to the flatus, gave trouble. On the 23d there was much pain and great depression of spirits. He was relieved by opium and hydrocyanic acid, with ginger and peppermint. On the 25th he had three evacuations by the rectum after an enema; and on the 28th he had another. On the 18th of January the report was that the wound was discharging a quantity of very offensive matter, and no evacuations were passed by the bowel. On the 1st of February he had three motions by the rectum, and small fæces passed by the wound. On the 13th the bowels acted naturally three times. He went on in much the same way, excepting that an abscess in the abdominal walls near the fistulous opening formed. At last he prepared to quit the Hospital and return home into South Wales; and it was arranged that he should have some kind of a pad or truss, which should be worn over the fistulous opening. Soon after his return home he wrote saying that the abscess in the walls of the abdomen, which had made its appearance before leaving the Hospital, had 'broken.' He continued for several weeks to be very weak and sometimes in great pain, the discharge from the wound greatly increasing. He then, April 16th, wrote saying that he had got much stronger, being able to sit up and to walk the length of the room without assistance, and had gained much flesh; the appetite being good and sleep natural. He was put on cod-liver oil, quinine, and steel, and the discharge from the wound became lessened; and later on went to the seaside, and had firm hopes of recovery. In January 1868 I heard from the patient, when he described himself as being less strong, but, on the whole, much the same; the discharge from the abdominal opening was still going on; other abscesses in the parietes having formed. He said that some of the alvine evacuation 'passed the right way.' After that I had no further news about him until I heard that he had died, sixteen months after leaving the Hospital, in a state of great emaciation, having passed 'a kind of discoloured corruption' by the rectum. Dr. Brown of Haverfordwest, who saw him after his return home, has informed me that he looked upon the case as one of a strumous tumour; and he has mentioned to me another case of the kind, which occurred in the infirmary in his locality, in which the gut was laid open by ulceration and progressive sloughing of abdominal parietes to a very large extent, and everything passed out from the bowel above the groin. He was unaware whether this sloughing and consequent opening of the bowel originated in a tumour, or abscess, or erysipelas.

In considering the relation of the tumour in the abdominal walls in the above case to the bowel, we have

to consider whether the tumour was an abscess which originally formed in the abdominal walls, and then, after peritoneal adhesions had been established as a result of local peritonitis, formed a communication with the intestine; or whether the ulceration of the bowel was antecedent, setting up local peritonitis, then adhesions to the abdominal walls, and subsequently originating abscess within them; or whether some local peritonitis existed first of all, and led both to the ulceration of the bowel and the abscess in the abdominal parietes. The absence of fever at the early stage, the constipation which came on some time after the tumour was found out, followed by hiccough and vomiting, rather indicated that the peritoneum and bowel had become affected secondarily to the abscess in the abdominal wall, which was (so to say) attempting to make its way inwardly.* It was worthy of observation that although there was ulceration of, and communication with, the bowel, yet no diarrhoea existed, and we have no mention of pus passing by the bowel.

CASE VI. *Spontaneous bursting of the abdominal wall at the umbilicus—Fæcal fistula resulting—Death.*

Mary Anne L., æt. 26, of steady habits, who had enjoyed general good health, excepting that seven years previously she had had ulcerated sorethroat (unaccompanied by eruptions on the skin, loss of hair, or pains in the bones), was admitted into the Hospital Dec. 1, 1873. She was married, had lost one child, aged three years, nine months ago, and had another child fourteen months previous to admission, but had not menstruated since its birth. About three weeks prior to admission she began to complain of cramping pains at the lower part of the front of the abdomen, feeling as if she were about to have a miscarriage, but she continued her work. At the end of a week the pain was so great that she took to her bed; and at this time she was very restless, tossing the arms, and the eyes being glassy and protruding (apparently from pain), and the speech was thick. Hot fomentations and sinapisms were applied to the abdomen, and on the day following she was, during the night, taken with shivering and chattering of the teeth and profuse sweating, which continued until morning. Entire loss of appetite and great thirst ensued. No more rigors came on, but the sweating continued; the right arm 'worked,' just as if she had St. Vitus's dance. Subsequently the pain increased; she seemed to become 'wilder'; the thickness of speech in-

* Bernutz, among his cases, quoted at p. 147, has one of acute inflammation of the fascia propria with abscess opening into the bowel; and one of a similar kind with 'migration of pus' into the abdominal cavity.

creasing, and the abdomen began to swell. Diarrhœa went on, the fæces being at first green and then yellow; but no blood or pus was noticed among them.

On admission, the patient's face was slightly flushed and moist with perspiration. Her eyes were prominent and glassy, and the eyelids dark. The skin was hot. The pulse 128 and the respiration 46-48. A slightly systolic bruit was heard at the base of the heart. The air entered the lungs freely and naturally in front and on the right side behind, excepting a few moist sounds in the tubes. (The left side was not examined, owing to pain.) The abdomen was very painful all over, and slightly distended with flatus, and the liver was slightly enlarged. No tumour was discovered. The tongue was dry and furrowed, red at the edges and in the middle, but free from sordes. The urine, which was full of lithates, was free from albumen. The left knee was slightly swollen and painful. A turpentine fomentation, followed by the hot spongio-piline, was applied to the abdomen, and three grains of Dover's powder, with one and a half of extract of hyoscyamus, were given every four hours. Ice was given to suck. The temperature at 10 P.M. on the day of admission was 104.2°.

On the following morning (Dec. 2), the patient 'felt better.' The respiration was 44, the pulse 128, the temperature 101.2°; the tongue dry, furrowed, coated irregularly, and dry yellow sordes existed about the mouth, and there was much thirst. The bowels had not acted since admission, but there had been no sleep. The pain had been relieved by the fomentations. On examination of the skin, no spots were detected, but at the umbilicus a *slight, tender, thin-walled protrusion was noticed in appearance just like a small hernia*. Two pills were repeated every six hours, and port-wine was given, and some simple dressing put on the umbilical swelling. In the evening (about 6 P.M.) a fæcal smell was noticed about the bed, and, on examination, it was ascertained that the protrusion at the umbilicus had burst, forming a very small round opening through the abdominal walls, and, on pressure, a considerable amount of blood and of what looked like purulent fluid spirted out. Poul-tices were applied, and during the night from two to three pints of dark-greenish fæcal fluid escaped, having a fæcal smell. The temperature was 102.6°. Much relief on the next day was spoken of, owing to the discharge; still there was much pain at the abdomen. The respiration was 36-39; the face flushed and moist; the tongue very dry; the pulse 134 and feeble, but full. The patient dozed at times towards evening, but was quite conscious. The abdominal fæcal discharge continued through the day, the patient taking half a grain of opium every six hours, and wine with eggs. In the evening the temperature was 102.4°. On the 4th the temperature was 101° in the morning. She then seemed better, but had not had sleep, and was very weak; she was quite conscious, but generally spoke with difficulty. The fæcal discharge continued, but there had been no proper evacuation by the bowel since admission, though there was a strong desire thereto. She had once vomited some dark-green fluid. About 2 P.M. she was very feeble, and the eyes were glassy and protruding, and she seemed half-dozing. The tongue was dry, slightly brown; the pulse 140. On the 5th it was re-

ported that she had passed two motions naturally and consciously by the bowels, which were firm and white; and she was very prostrate afterwards, having cold perspirations. Pain was specially complained of in the right lumbar-iliac region. The face was flushed and hot; the pulse 134; the tongue very red, but moister. The urine was scanty, free from albumen. Strong beef-tea, in addition to milk, &c., was given, and a morphia draught ordered for the night. On the 6th she had become generally unconscious and very restless, but when aroused complained of pain. The umbilical discharge was less, and more watery. Opium and ammonia were given every four hours, and on the 7th she was more exhausted, and died at 1 P.M., some motions having shortly before death passed per anum.

A synopsis of the temperature taken is given in the following scale :

December 1, P.M.	Temp.	104.2°	December 3, P.M.	Temp.	102.4
" 2, A.M.	"	101.2	" 4, A.M.	"	101
" P.M.	"	102.6	" P.M.	"	101.4
" 3, A.M.	"	101°			

Post-mortem examination. The body was well nourished. At the umbilicus was the opening of a fistula leading into the small intestine. There were a few pleural adhesions posteriorly on the left side of the chest. The right pleura was natural. The base of the right lung was congested; the lungs were otherwise natural.

The heart was natural. The peritoneum was everywhere thickened, and many of the coils of the intestine were firmly adherent; the membrane, moreover, was coated with recent lymph. In the left iliac fossa was a collection of creamy pus, confined to that situation by peritoneal adhesions; in the right hypochondrium was a faecal abscess, communicating by a rugged opening with a portion of small intestine; a probe passed through the umbilical fistula entered the same portion of bowel. The intestine was elsewhere natural.

The liver was fatty, weighing 104 ounces. In the centre of the pancreas, and passing by the side of its duct, was a collection of about an ounce of well-formed pus. The other abdominal organs were natural and small.

In this case the pain, the diarrhoea, and other symptoms point clearly to the primary existence of ulceration of the bowel and peritonitis, to which the affection of the abdominal wall was consecutive. Indeed, there was no phlegmon or abscess of these walls at all, as they merely gave way at the least-resisting part, involved as they were by the peritonitis. Whether the ulceration of the bowel was originally connected with enteric or typhoid fever or otherwise, could not be learnt, though it appeared improbable; but it was a point of discussion;*

* Quite recently, as the proofs are going to press, I have had a case in the Hospital of a girl who came in with symptoms of acute peritonitis, which

and, indeed, whenever there is peritonitis, or indication of ulceration of the small (or even large) bowels,* it is always requisite to find out, if possible, whether the patient has been convalescent from fever, or if there be a phthisical constitution, as we are so apt to have ulceration of the intestines in this state.

The existence of the 'nervous symptoms,' the restlessness, the affection of speech, the spasmodic muscular movements, and finally the coma, were clinical points worthy of note. Were they to be looked on as secondary to the abdominal affection, and the result of a strictly reflex influence on the nervous centres, or were they manifestations of some blood-poisoning?

The following case—one of peritonitis, with ulceration of the intestines and sloughing perforation of the abdominal walls—occurred in this Hospital some years ago, at a time when, as curator of the Museum, I had to make the post-mortem examination.

CASE VII. *Acute peritonitis becoming chronic—Fistulous perforation of abdominal wall near the groin—Death.*

The patient was admitted into the Hospital in 1852. She had been attacked three weeks before, without assignable cause, by severe pains in the abdomen, commencing suddenly, and followed by sickness and diarrhoea. It had not commenced at a menstrual period; the catamenia had been quite regular, and had occurred three weeks previously. She was, on admission, also suffering from sore-throat and difficulty in swallowing. There had been *no* headache, shivering, or general symptoms; and she had not been confined to bed constantly, as the pain in the abdomen was not constant. When admitted, the face was rather pale, with a slight flush on the cheeks; the pulse weak, quick, and jerking; the tongue very red, peeled, and glazed, with aphthæ appearing on its edges, and the soft palate was also aphthous. The abdomen was full, firm, and tympanitic; there did not appear to be much tenderness, but she said that it had been so that she could not bear the weight of the bedclothes. She was ordered a little grey powder and Dover's powder every night, a saline through the day, and in the first instance a small dose of castor-oil. The chest gave no evidence of tubercular disease. She chiefly complained of weakness

appeared to be the result of ulceration of the bowels in connection with fever, from which she was recovering. The case presented several other points of interest, and I hope to place it on record.

* Of course most commonly it is the small bowel which suffers in enteric fever, but in many cases the large bowels also are affected, and in a few cases we find that the large bowel (colon) becomes extensively ulcerated.

and want of sleep. The pain was somewhat relieved, but returned, with more sickness, on the 27th, for which an effervescing saline was administered, with a few drops of laudanum, followed by turpentine stupes to the abdomen; and then a grain of opium twice a day, combined with a grain of calomel. On the 2d of November the tongue assumed a more natural appearance; the pulse was weak, and often 96. Pain was less severe, but diarrhoea continued. Sickness again recurred on the 7th, with greenish-coloured vomiting. The gums began to be tender, and the mercurial was omitted. She was now only ordered a saline effervescing draught with henbane by day, and laudanum at night, without much benefit. Sickness continued constant, with diarrhoea; the face swollen and emaciated. On the 15th the abdomen was more tense and tender; with a good deal of hardness, and pain was complained of, mostly at the epigastric region. Wine and nourishment were administered as she was able to take them. Chalk-mixture, hydrocyanic acid, and sinapisms were in succession employed without marked relief; and again recourse was had to the opium treatment. The skin at the lower part of the abdomen on the right side inflamed, and an abscess formed near Poupart's ligament, which broke externally. On the 24th she was unable to take almost any food; she became much emaciated, and gradually sank from exhaustion, the skin becoming cold, the features shrunk, the eyes yellow, and the body exhaling a cadaverous and somewhat of a gangrenous odour.

Post-mortem examination. The body was emaciated, and there was considerable ascites. There was a sloughy condition of the integument in the right groin, and ulceration into the peritoneal sac in two places, one above, and the other a little below Poupart's ligament, somewhat to the outside of the middle of the ligament.

Abdomen. Much dirty purulent fluid existed in the cavity, and the peritoneum was very discoloured, and contained in many parts yellow pea-shaped deposits of tolerably firm fibrin, especially between certain intestinal convolutions, which were adherent at these parts. The lining of the intestinal tract was generally congested; but in the ascending colon were two or three perforations of an oval shape, with ragged edges, and tolerably large. At these points the intestines were glued together, by which the contents were prevented escaping. The liver was large, pale, fatty, and weighed four pounds. The spleen was large. The kidneys weighed twelve ounces; they were large, with rather adherent capsules, and a yellowish hue as to their cortical parts, but were otherwise natural.

Thorax. Excepting some old double pleural adhesions, the thoracic contents were natural.

In the above case we have an instance, doubtless, of perforation of the bowel resulting from ulceration, setting up acute peritonitis, which became more or less chronic, and this in its turn leading to inflammation of the abdominal parietes in the neighbourhood of the inguinal ring.

What may have been the cause of the intestinal ulceration in the first place it is impossible to say, as the previous history and the results of the post-mortem examination fail in pointing to any illness or predisposition leading up to it.

To the above three cases I will add the description of two others which occurred in our hospital practice, illustrating the subject of fistulous communication between the surface of the abdominal walls and the bowel.

CASE VIII. Abscess in the abdominal walls—Fistulous opening communicating with bowel: the result of the swallowing of a piece of bone—Death

The patient was a charwoman, admitted into the Hospital May 1855. She had been living poorly, but had no apparent disease; her appearance being healthy; pulse natural; bowels regular. The tongue, however, was rather irritable, and the appetite bad. She applied for admission on account of an abscess in the abdominal parietes, about an inch below the umbilicus, in the median line. She could give no account whatever of its history, except that she had observed a lump there for about three weeks, which had been increasing and getting very sore during the last fortnight, and that she had had two fits of shivering, one six, the other two, days before admission. No fluctuation was felt in the swelling when she first applied; the skin was rather red over it; there was no impulse on coughing, and it was not resonant. May 19, ten leeches were applied; and three days after admission, the abscess having then come forward, it was opened, and a good quantity of foul matter evacuated. It continued to discharge foul, offensive, and very fetid matter up to the day of her death, which occurred on the night of the 23d. On that night she was seized with sudden faintness and sensation of cold—having been quietly asleep ten minutes before. The house surgeon was sent for (the nurse having given her some wine and ammonia, which she swallowed), and found her pulseless and cold, but still sensible enough to indicate that she felt no pain in the stomach; her lips were blue and her face pale. She was moaning and tossing restlessly about. Restoratives were applied, but she died almost instantaneously.

Post-mortem examination. The body was well formed and in good condition, but very pale. There was a small wound leading into the cavity of a foul abscess on the front of the abdomen, immediately below the umbilicus.

Thorax. The lungs and heart were quite healthy.

Abdomen. Immediately below the umbilicus, in the median line of the abdomen, was a small wound leading into an abscess formed between the component parts of the abdominal wall; it was about the size of the palm of the hand, and contained a quantity of highly-offensive grumous-looking pus, mixed up with shreds of sloughing areolar tissue. The abscess had opened through the abdominal wall behind by an

irregular-shaped sloughing orifice of about the size of the end of the index finger; but this orifice did not communicate with the general peritoneal cavity, as far as it could be observed; for the great omentum was adherent to its margins and the surrounding parts to some extent. The central part of the transverse colon was also adherent to the abdominal wall at the same part; the bands of adhesion connecting the colon to the abdomen were, however, firmer in texture, and evidently of older date than those connecting the great omentum to the same part, and it is most probable that there had been at some former time perforation of the colon, allowing the passage of the piece of bone which had been swallowed, although no appearance of the opening was met with. In the cavity of the abscess was found a foreign body. It was bone, of an acicular form, smooth on its surface, pointed at both ends, and of a yellowish-white colour. The peritoneal cavity contained a little straw-coloured serous fluid. The general peritoneal surface presented a uniform pink tinge, particularly over the intestines, and their contiguous margins were very vascular. The other abdominal viscera were healthy.

The above post-mortem examination was made by Mr. Gray; but as I was then also working in the post-mortem room, by Mr. Hawkins's permission I took the piece of bone to Mr. Quekett, the celebrated histologist, at the College of Surgeons; and he determined that the piece of bone referred to above was in fact a piece of the rib-bone of a rabbit, which had been swallowed. This specimen of bone was for some time preserved in our Museum, but in process of time it has become misplaced, and I cannot point it out to you.

CASE IX. Fistulous communication between external parts and the transverse colon at the umbilicus—Death.

John S., æt. 56, was admitted into the Hospital January 5th, 1870. He had for nine months suffered with abdominal pain and flatulence. The bowels acted regularly till the last few days. Six months ago he lost fluid per rectum; never was jaundiced. About Christmas he began to feel very weak, and lost appetite; also had more pain in the abdomen; and a week ago he noticed a discharge from the navel of purulent matter, mixed with what appeared to be feces. Tongue dry; pulse 90, weak. There is a small red granulation at the navel, from which there escapes fecal and purulent matter. He was kept in bed, and a poultice applied. For some time there were no feces in the discharge, which consisted only of foul pus. The sinus was injected with sulphate-of-zinc lotion. A probe, covered at the end with nitrate of silver, was also passed into the sinus. The discharge still continued, and his motions were very offensive.

March 15th he had diarrhoea, and the discharge was again mixed

with feces. From this time he had frequent diarrhoea, which was treated with starch-and-opium enemata, and with bismuth and opium; but he gradually became weaker, and died on the 21st.

Post-mortem examination. The body was rather emaciated. There was a small sinus, which barely admitted the little finger, to the left and just above the umbilicus, which led down into the intestines.

Thorax. At the base of the left lung were some old pleural adhesions. The upper lobes of both lungs were in an emphysematous condition, while the lower parts were infiltrated with thin serous fluid; and the bronchial membrane of the right lung was very vascular, and the tubes contained much mucus. The heart was soft and fatty. There was a little deposit of atheroma on the mitral and aortic valves.

Abdomen. The liver was fatty, and the kidneys were diseased. The ascending colon was greatly distended with liquid feces of a light clay colour and extremely fetid odour. About the middle of the transverse colon some firm adhesions were found which connected it to the abdominal parietes at a point exactly corresponding to the external opening above described. These adhesions were thick, so that the sinus alluded to led down to the adherent bowel, in which a small opening existed, allowing the free passage of feces.

The above case is one simply of ulceration of the bowel, forming a connection by peritoneal adhesions with the anterior abdominal wall, and producing perforation. Possibly the diseased state of the kidneys and heart was sufficient so to affect the well-being of the patient that he sank somewhat suddenly under a lesion which otherwise would hardly have been expected to have led to such a result.*

And now, gentlemen, I conclude my relation of such rare cases of abdominal disease as I was wishful to bring before your notice. Commencing with the description of a few recent cases which you have yourselves had the opportunity of witnessing under my care in the Hospital wards, I have sought, by adducing other cases from our

* Dr. Habershon's work, to which I have before alluded, will furnish instances of openings through the abdominal walls in connection with perforation of the intestines. Thus at p. 357 he describes a case of abscess in the groin which was opened in connection with cancer of the cæcum; at p. 532 is a case of suppuration external to the sigmoid flexure of the colon communicating with the bowel and opening on the anterior abdominal parietes; at p. 540 a case of fæcal abscess in the pelvis communicating with the ovary and bladder and rectum, and opening through the groin; at p. 570 is a case of strumous peritonitis, with fæcal abscess, opening through the umbilicus.

own records, and from other sources which you have at hand, to illustrate in some measure the clinical history of certain kinds of abdominal disease, having reference in particular to those instances in which relief has been attempted or attained by spontaneous and artificial opening through the abdominal walls. I hope in another lecture to lay before you the history of two cases of cancerous tumour within the abdomen which presented more than ordinary interest.*

* These two cases will be found related at p. 217.

XIII. HISTORY OF A CASE OF UNREDUCED DISLOCATION OF THE HIP-JOINT.

By SAMUEL LEE.

So rarely has the surgeon an opportunity of examining the exact condition of the joint and surrounding soft parts in a case of recent dislocation of the hip-joint, that the following case, in which the dissection was made shortly after the death of the patient, was considered worthy of record, and more especially so as no attempt had been made to reduce the displaced bone.

Robert Smith, æt. 45, was admitted into the Leicester Infirmary, under Mr. Marriott's care, on July 18th, 1874. The history he gave was, that whilst attempting to couple two railway carriages he was struck forcibly by the buffer of one and thrown violently on his right side; on attempting to walk he found he was unable to do so, and shortly after was brought to the infirmary. When admitted, he was in a state of extreme collapse, and complained of inability to move his right leg. On examination, a dislocation of the head of the femur backwards was readily detected, but it was observed that two of the main signs of the dislocation were absent—namely, the advanced position of the knee with the foot resting upon the opposite one and marked shortening. Shortly after admission a consultation was held, but owing to the feeble condition of the patient it was not considered advisable to attempt the reduction of the displaced bone. On the evening of the following day the patient was attacked with severe sickness, and rapidly sank from the shock of the accident.

On post-mortem examination, thirty-six hours after death, the attention was very naturally first of all directed to the hip-joint and the surrounding structures. The head of the femur was found to be situated below the pyramidalis muscle and immediately behind the acetabulum, the capsule of the joint being freely lacerated all round, a small portion only remaining attached to the femur in front and behind; the ligamentum teres was torn off close to its attachment to the femur, its connection with the acetabulum being undisturbed. On dissection, the muscles surrounding the joint were discovered much stretched, but no laceration could be detected. The cartilage covering the head of the femur was intact and the cotyloid ligament uninjured. On manipulation, the muscles were found to be the main obstacles to reduction.

Of the cases in which the state of the joint has been made a special study after death there are three of importance. The first is related by Sir A. Cooper in his work where the sciatic form of dislocation is treated of; the second by Dr. Scott; and the third by M. Billard. Sir A. Cooper's dissection was made some time after the accident, the patient having survived it many years. The structures, as Mr. Quain remarks, had therefore undergone much change, and there is no account of the person from whose body the joint was removed; neither is there any statement regarding the position or length of the limb. In Dr. Scott's case, published in vol. iii. of the *Dublin Hospital Reports*, the reduction was effected before the death of the patient; consequently it is difficult to determine how much was due to the accident and how much to the attempts made at reduction. Mr. Quain published a case in vol. xxxi., *Medico-Chirurgical Transactions*, in which, as in M. Billard's, the examination was made immediately after the accident; consequently they are both of great value in enabling us to determine the state of the parts immediately surrounding the displaced bone, and still more so because no attempt had been made to restore it to its normal position. In Mr. Quain's case the head of the femur lay below the pyriformis muscle and immediately behind the acetabulum, with a moderate quantity of blood around it; the gluteus maximus was uninjured, the gluteus medius was in a state of relaxation, and at its posterior part some fibres of the muscle were torn through; the pyriformis was slightly stretched; the gemelli and obturator externus were in a state of extreme tension; the only muscles sustaining real injury being the obturator externus and quadratus femoris. The capsular ligament was torn at its internal and lower part; the ligamentum teres was torn out of its depression on the head of the femur; and the edge of the acetabulum was broken off. In Dr. Scott's case the head of the femur lay below the pyriformis muscle, or rather, as Mr. Quain remarks, Dr. Scott found evidence of its being so situated. In Mr. Quain's and M. Billard's cases the head of the femur was immediately behind the acetabulum, and opposite the interval

between the two sacro-sciatic foramina. In the former case the dislocated thigh, instead of being inclined towards the trunk, was farther back than it, and the foot of the same side, though directed towards the opposite foot as a part of the general inversion of the limb, was at some distance from it.

With regard to the reduction of the dislocation, Sir A. Cooper states, that when the extending force is to be applied 'the thigh is to be brought across the middle of the other thigh.' In a case of dislocation of the femur in a child aged ten years I followed the rule laid down, but found it was not in my power to reduce the dislocated bone, and therefore adopted Mr. Quain's advice and changed the direction, flexing the thigh upon the abdomen, and the dislocated bone readily returned to its normal position. On experimenting on the dead body this will become evident at once. Mr. Quain remarks that it is likewise advantageous, while the extension is being made, that the thigh should be in a state of abduction, so that the head of the femur shall be drawn in a degree away from the side of the pelvis while the extension with the pulleys is in progress. There is little doubt that these combined movements, together with elevation of the bone as it is drawn towards the acetabulum over its lip, are of considerable value in effecting the reduction.

XIV. ON PULSATING TUMOURS WHICH ARE NOT ANEURISMAL, AND ON ANEURISMS WHICH ARE NOT PULSATING TUMOURS, BEING A CONTRIBUTION TO THE DIAGNOSIS OF ANEURISM.

By T. HOLMES.

THAT there is difficulty attending the diagnosis of aneurism is no new discovery. We have frequently heard of the remarkable example of this difficulty which was furnished by the four successive surgeons of the Hôtel Dieu—Ferrand, Desault, Pelletan, and Dupuytren. ‘Each of the other three opened an aneurism by mistake for an abscess, and Pelletan laid open a malignant pulsatile tumour, intending to perform the old operation for aneurism’ (Broca). Every one also knows how the greatest surgeons and most experienced operators, both of our own and former times, have now and then failed in their diagnosis in both directions, having, on the one hand, tied arteries for tumours which turned out on examination not to be aneurismal, and, on the other hand, mistaken aneurisms for abscesses or cancerous tumours. Thus both Mr. Guthrie and Mr. Moore tied the common iliac artery, as they believed, for aneurism, and on post-mortem examination the disease was found to be malignant; and Sir J. Paget some years ago commenced an operation for the ligature of either the external or common iliac artery, as the case might be, believing the tumour to be aneurismal. On exposing the latter, however, it so exactly resembled cancer that he gave up the operation. The patient died of bleeding from the tumour shortly afterwards, and then it was proved that it was really an aneurism. All these facts are among the commonplaces of surgical literature.

Yet it must be allowed that it is painful to confess that such mistakes are inevitable at the present day; and I would willingly, if I could, do something to elucidate the diagnosis, and assist our successors to avoid our errors. If I cannot do this, I would hope at any rate to point out what the difficulty is, to specify the doubtful cases, and thus to mark those in which the diagnosis is dubious, and where also on that account the treatment ought to be very cautious and hesitating.

We have recently had several cases in the Hospital which will serve well to illustrate the difficulties which occur occasionally, difficulties which, however, are not by any means common. In general, aneurism is a disease which can be easily and certainly diagnosed, but in the practice of a large hospital doubtful cases will here and there turn up. I shall also illustrate the subject by the recorded experience of Pirogoff; an author whose name is, if I mistake not, more familiar to us than his writings, though these are distinguished for their practical good sense and candour.

And I hope that the present essay may not be regarded as wholly superfluous, considering that a most distinguished American surgeon, Dr. Stephen Smith of New York, not long ago published a paper, 'On the Difficulties attending the Diagnosis of Aneurism from Abscess,' *Am. Jour. Med. Sci.* April 1873, the effect of which would, I fear, be to relieve medical practitioners of some part of the burden of responsibility justly attaching to those who commit errors, often leading to a fatal result, from neglecting some of the well-known methods of surgical examination. This paper I summarised and reviewed in the *London Medical Record*, May 14, 21, 1873; and to that review I would refer the reader, as far as the medico-legal aspect of the case is concerned. I would merely say, for my own part, that though fully convinced of the reality of the difficulty, and even of the impossibility in some cases, of deciding whether a swelling is or is not an aneurism, yet I cannot admit that the diagnosis is so far obscure that a man can plunge a knife into an aneurism, and his patient bleed to death, without at any rate a very

strong *primâ-facie* presumption of gross and criminal negligence being raised against him.

Let us try, in the first place, to establish a clear distinction between the errors which are committed from trusting too implicitly to a single symptom, and those which are committed after a deliberate examination of *all* the circumstances of the case; and let it be clearly understood that it is only where the surgeon has neglected to apply all the methods of examination that criminal blame will attach to him for the mistake in diagnosis. It is a strange doctrine that a man should be held innocent who opens a fluctuating tumour close to a large artery, by a 'bold' plunge of the knife, without having ever listened for a bruit. Yet in many of the cases in which aneurisms have been mistaken for abscesses this has been done, even in our own day; and of course in all those which occurred in the prestethoscopic era. I should almost think this remark too trite and obvious if it were not that it disposes at once of a great many, if not the majority, of the cases of mistaken diagnosis. Thus in Liston's celebrated case no stethoscopic examination was made, though it is evident that a bruit must have existed.

The importance of auscultation in all doubtful cases is obvious, and is attested by numerous recorded instances.

The following case is worth quoting as showing the kind of error which is often committed, though seldom so frankly avowed. Pirogoff, after relating a case in which he had nearly opened a fluctuating tumour in the neck, under circumstances not very unlike those which occurred in Liston's case, but luckily saw his error in time, says:

'In the second case my error cost the patient his life. A few years ago I got home one night late and tired, and found a man waiting for me, who begged me earnestly to go with him to a patient living some distance off, but in pressing need of assistance. I went with him, but I confess unwillingly. When I got there, I found a middle-aged man in whose features might be read the pain that he was suffering. He shrieked and cried, and begged me earnestly to give him relief from his pain as quick as possible. On

examination, I found a swelling at the inner side of the thigh, just above the knee-joint, as large as a child's head, not clearly defined, of an intensely red colour and tense consistence. The hardness, tension, and heat, the strong beating pains of which the patient complained, and the high fever, appeared to me plain indications of inflammation due to phlegmonous erysipelas of the deep subaponeurotic cellular tissue, and without farther thought I seized my bistoury and made a long and deep incision through the fascia into the tumour. I found indeed some matter infiltrated in the cellular tissue, and my finger passed into a cavity, which, however, to my consternation, contained no pus, but a solid mass. And I now for the first time noticed that the tumour pulsated, a fact which was more noticeable now that the tension was taken off by the incision. It was a femoral aneurism which had become inflamed. And, to my shame, I found out afterwards that the real nature of the disease had been diagnosed by two other physicians. But as I did not go into the history, and as the patient was a very excitable and violent man, who had no desire to relate his case to me, but only begged me earnestly to relieve his pain as quick as possible, and as I was (as I have said) tired and out of temper, the correct diagnosis of my colleagues did not reach my ears till too late. To remedy my error as well as I could, I applied a tourniquet, put on cold applications, set a person to watch him, and tied the femoral early next day.* The sequel of the account relates how the case seemed to do well at first; but then secondary hæmorrhage from the sac and suppuration of the cavity exhausted the patient, and he sank.

Well may Pirogoff say, 'There are in every one's practice moments in which his vision is holden, so that even an experienced man cannot see what is perfectly clear nevertheless. At least I have noticed this in my own case. An overweening self-confidence, a preconceived opinion, vanity, and weariness are the causes of these astonishing mistakes.'

Now, without wishing to press hardly on the faults of our neighbours (which no wise man would do who remem-

* *Klin. Chir.* p. 95.

bers his own mishaps), I think we may say that, in a scientific point of view—considered, that is, purely as problems of diagnosis—such errors may be set aside. In both Liston's and Pirogoff's cases it is clear that a correct diagnosis might easily have been made had the surgeons employed every means in their power to arrive at it—that is to say, if they had investigated the history, felt the tumour, and auscultated the part with all the care which so grave and so doubtful a case demands.

The original error consisted in not seeing that the case really was doubtful at all. Fluctuating tumours in the neighbourhood of large arteries should never be opened (unless they are visibly and unmistakably abscesses) without a previous careful examination of their history, their pulsation, their bruit, the effect on them of compression of the main trunk if possible, and finally, in case the doubt remains, an exploratory puncture. If this very common-sense precaution were observed, we should hear less of mistaken diagnosis in aneurism.

The cases cited by Dr. Stephen Smith to illustrate the difficulties in diagnosing aneurism are many of them of the same nature as this of Pirogoff's.

I will just put down the heads of each case in order to support this part of my argument.

I. De Haen's case, p. 307.* An aneurism with suppuration around it; the tumour was opened and pus evacuated. Eight days afterwards it burst, and the patient bled to death. No stethoscopic examination.

In this case it seems that no error was really made, since the abscess appears not to have at first communicated with the aneurism.

II. Freer's case, p. 308. A non-pulsating tumour near the radial artery at the back of the wrist; opened without any stethoscopic examination, or, as far as appears, any patient examination of any kind; the artery bled and was tied with success. But there is no proof here that there was any aneurism. There might have been a small abscess, in opening which the artery was wounded.

III. Bell's case, *ibid.* This seems to have been an in-

* The numbers refer to the pages of Dr. S. Smith's paper.

flamed femoral aneurism, opened by mistake for an abscess, and without any auscultation.

IV. Fearn's case, p. 309. A large swelling in the lumbar region, with spinal symptoms; taken for an abscess, 'though there was great difference of opinion;' punctured; florid blood gushed out; no harm done. Then the stethoscope was applied, 'and the most marked "bruit de soufflet" was heard.' On post-mortem examination, a large aneurismal tumour was found. Of course the bruit might have been detected as well before the puncture as after.

V. Ibid. The case of Mr. Hewett's patient, related below on p. 192.

VI. Pelletan's case, p. 309, of an aneurism which was at first mistaken for an abscess, but ultimately the symptoms became clear. No stethoscopic examination could of course have been made at that period.

VII. Dupuytren's case, p. 310. Axillary aneurism mistaken for abscess. No auscultation. The pulse was wanting at the wrist, and a pulsation which existed in the tumour had been overlooked.

VIII. Spence's case, p. 311, in which the carotid was tied for a pulsating tumour, which turned out to be an abscess passing into the mediastinum. Nothing said as to auscultation.

IX. Warner's case, *ibid.* 'An abscess pressing on the heart after fracture of the sternum, and pulsating through that bone. No auscultation.

X. Duncan's case, p. 312. A large tumour in the thigh, punctured under the idea that it was an abscess. Fatal bleeding ensued, and it is reported as an aneurism; but there are no particulars given.

XI. New York case, *ibid.* A swelling forming after a gunshot wound, with pulsation and a bruit. There was some difference of opinion among the surgeons who saw it, on account of pain, heat, &c.; but it turned out to be aneurism. Here also there seems to have been no real error ultimately, though, for some reason which hardly appears from the few particulars given, there was great difficulty in arriving at the right diagnosis.

XII. Whitridge's case, p. 312. A swelling forming in

the thigh after gunshot wound, and becoming so large that it threatened to burst. No pulsation. An incision was made. Gush of arterial blood. Then the external iliac was tied. The man died. No auscultation.

XIII. Post's case, p. 316, of a pulsating tumour with bellows-murmur lying in the corner of the external iliac artery; flattened, hard, and not yielding to pressure. Some difficulty existed in the diagnosis of this case, which is not perfectly explained, but which seems to have been due to the hardness of the tumour and the pain in it. An exploratory incision was made, and the tumour being found to be an aneurism, the common iliac artery was tied, but the patient died in twenty-four hours.

The inference from this series of cases would be that most errors which are made arise from neglect of auscultation; since in Cases III. VI. VII. X. and XII., in which aneurisms were opened by mistake for abscesses, no previous auscultation was made. In Case IV., after the mistake had been committed, auscultation revealed a symptom which would have prevented it if it had been detected earlier. In Cases XI. and XII. auscultation led the consultants to a right, though not an unhesitating, opinion. In Cases I. and IX. no mistake was committed, as far as the account enables us to judge; and in Cases II. and VIII., if there was any mistake, the account is not full enough to enable us to judge of its nature or cause. In neither does it seem that the stethoscope was used. This leaves only Case V., where also auscultation was not employed, but which will be more fully referred to hereafter, as it occurred in this Hospital. I submit, therefore, that this collection of cases shows that the diagnostic symptoms of aneurism are often overlooked rather than that they are untrustworthy.

Pirogoff's experience is to the same effect. In the work above quoted he relates seven cases in which the pulsation of an aneurism was either absent or very doubtful. The first was a very interesting one of a great swelling in the arm after venesection, in which fluctuation could not be felt, and in which no pulsation or bruit could be heard. The brachial artery was, however, tied; but this had no effect

on the tumour, which increased, and threatened to burst. An incision, made under the idea that the tumour had suppurated, gave rise to so much bleeding, that the subclavian was ligatured. The patient recovered after an attack of secondary hæmorrhage from the wound made in tying the artery, and another from the incision into the tumour. Here auscultation, it will be noticed, was used, and gave negative results.

The second, third, and fourth cases were not instances of aneurism, as we understand the term. One was a fluctuating tumour in the knee-joint after an injury, in which a doubtful pulsation could be made out, and which was not auscultated, but in which amputation was obviously indicated by the destruction of the joint. It then turned out that the ligaments had been extensively ruptured, and a large vessel had given way and poured out its blood into the joint. The third case was an instance of some congenital vascular tumour; and the fourth one of spinal disease, in which the aorta had been perforated by ulceration.

The fifth case is one of very great interest. A soldier was suffering from a fluctuating tumour, the size of a child's head, in the epigastrium. It was taken for encysted dropsy, and paracentesis was resolved on. But, then, the patient's history showed that the swelling had come on after the kick of a horse; and, on a more careful examination, both a certain amount of pulsation and a dubious bruit were made out. It was thought that both might be caused by the pressure of the tumour on the abdominal aorta. Still it was decided not to tap the tumour. The man died suddenly of hæmatemesis; and then the tumour was found to be a sac formed in the small omentum filled with blood, and communicating with two ulcerated branches of the coeliac axis, which lay closely embedded in its outer wall.* The value of careful palpation and auscultation in establishing the diagnosis, or at least in preventing an erroneous opinion being hastily formed, is well shown in

* I would pause to inquire whether paracentesis through a very small opening might not, in this case, have been really of service. I am persuaded that the rupture of aneurisms might often be delayed, if not prevented, by tapping them, of course through the smallest possible puncture, and with all due care.

this instance. How easily might not the result of the first examination have been appealed to as a proof that this aneurism was unaccompanied by any pulsation or bruit!

The sixth case is even more striking. It was that of a man who had been wounded in the buttock by a sharp file. The resulting swelling was diagnosed as abscess. Repeated incisions were made not deep enough to reach the fluid. At length one was made which opened into an aneurism, out of which a stream of blood burst, which compelled Pirogoff to tie the common iliac, but with a fatal result. After the fatal bleeding it was ascertained by auscultation that there was a bruit in various parts of the tumour; and doubtless this would have been still more easily ascertained before if it had been sought for.

The seventh was a somewhat similar case. A man who had before suffered from a phlegmonous abscess in the thigh, and who was rheumatic, presented himself with a large inflamed swelling, indistinctly fluctuating, below the pectoral muscles and in the axilla. Not doubting that it was an abscess, Pirogoff had the scalpel in his hand to open it, when it occurred to him to auscultate the swelling. A low bruit revealed the true nature of the case. The symptoms are not very fully given; but the subclavian was ultimately tied. The patient died; and on dissection it was found that there was a small opening in the axillary artery, and the swelling consisted of blood extravasated under the pectoralis minor. From these cases Pirogoff deduces the practical rule, never to open a deep-seated swelling, however plainly it may fluctuate, without previous auscultation, though he points out that bruit may exist in swellings which are not aneurismal (such as medullary cancer), and that in swellings which are in all probability aneurismal the bruit may only be audible in parts. He thus sums up the whole subject: 'If I were asked what signs I hold most decisive of the existence of an aneurism which does not pulsate, I must confess that, if there is no bruit to be heard at any part of the tumour, I know of no other than these two: (1) collapse of the swelling, sometimes only to a slight extent, when the main artery is compressed between the heart and the tumour; and (2), if the

pulsation of the artery can be felt upon the surface of the tumour, an unnatural extension of its impulse; for example, over twice the usual breadth of the vessel. But, in order to satisfy oneself of these two phenomena, it is, of course, necessary to examine the case repeatedly, and with the greatest attention. The diagnosis must not be founded on a single examination.'

Although, however, I maintain that the difficulties of diagnosis are rarer than might be imagined from the number of cases of mistaken diagnosis which are now on record, and although I cannot but think that in many of them a moderate amount of care, such as may reasonably be expected from every surgeon in so grave a case, would have obviated them, I cannot but confess the existence occasionally of very great difficulties.

They proceed from various causes: 1. The presence of transmitted pulsation in tumours, which, though they have no connection with arteries, yet lie upon them, and share their pulsation. When these tumours are superficial the difficulty is not very serious. No experienced surgeon is likely to be much embarrassed in the diagnosis from aneurism of a popliteal cyst or enlarged gland receiving its pulsation from contiguity to the artery, or of a thyroid cyst pressing on the carotid or innominate, and receiving pulsation from it. Such tumours can be readily drawn away from the artery, and will then cease to pulsate. But the case is widely different when the tumour is deep-seated. Thus in Mr. Moore's case,* where the common iliac was tied, in the belief that the tumour was an iliac aneurism, it was found on post-mortem examination to be a cancerous mass situated in the glands, but so surrounded with arteries that it pulsated in the whole of its substance; and I am quite ready to admit that in that case no confident diagnosis could have been made. Certainly no one who knew Mr. Moore could doubt that nothing which a profound knowledge of surgery and a conscientious regard for his patient's welfare could dictate would be wanting in the diagnosis or treatment of the case. But it is clear from Mr. Moore's account that the diagnosis was not made

* *Med.-Chir. Trans.* vol. xxxv.

without hesitation, and that the symptoms were not exactly those of aneurism. In fact, Mr. Moore tells us that though there was pulsation, and 'a loud and rough murmur could be heard over the whole tumour and at the back of the ilium,' yet that his 'first impression was that it was an enlargement, possibly malignant, of the iliac glands;' for 'neither the force of its pulsation nor the character of its bruit were proportioned to its bulk, supposing it to be an aneurism. . . . The pulsation, though distinct, was not universal, and the tumour in parts felt even firm' (p. 461). Had Mr. Moore happened to discover during life the fact which was revealed after death, that the urine contained cancer-cells, he would, of course, have abstained from operating in this case, though he might not have been able to form a confident diagnosis of its nature. But even as the case stood during life it is clear that there was a good deal of doubt as to its nature; and this is sufficient for my present purpose. Nor could I express more clearly the reasons for this doubt than in the sentences which I have just quoted from Mr. Moore's paper. The pulsation being due in these cases, not to the injection of the arterial blood into a large cavity with firm walls, as in aneurism, but only to the impact of blood in the artery (or arteries, as in the case before us), against a contiguous unvarying mass, the pulsation is, as Mr. Moore describes it, disproportioned to the bulk of the supposed aneurism. And the same is the case with the bruit. It may be loud—and if the tumour be firm, and the arteries which it compresses be large, it will be loud—but it has not the rushing character of the aneurismal bruit. And, further, both the pulsation and bruit are variable in different parts of the tumour. In aneurism both radiate from one point of the tumour; and the bruit especially can often be traced with facility to the point where the artery opens into the sac; whereas, in Mr. Moore's case, 'the pulsation, though distinct, was not universal,' and the same might doubtless have been said as to the bruit. On the whole, I do not think it is too much to say, that if the surgeon examines his patient carefully and repeatedly he may always find enough in these solid deep-seated tumours pressing on arteries to put him on his

guard; and that, although the progress of the tumour and the certainty of a fatal issue otherwise may induce him to operate in cases such as Mr. Moore's, where the tumour was growing and fresh pulsating spots were appearing, yet such errors will only be committed in cases otherwise surely fatal, and will therefore be harmless.

2. There are, again, other tumours which derive pulsation, not from the contiguity of arteries, but from the presence in their substance of large cavities, whereby they are brought into continuity with the arterial stream, and thus approach very nearly to the character of aneurisms; at least of that variety of vascular tumour which is called aneurism by anastomosis. The blood brought into these blood-cysts in the substance of the tumour by numerous large vessels, and bound down by the lining membrane of the cysts, is exactly in the position of blood in an aneurismal cavity, and will pulsate sometimes with just the same lateral or expanding pulsation. For the 'lateral pulsation' on which so much stress is justly laid in the diagnosis of aneurism shows only that the fluid is contained in a large cyst, and that an artery opens freely into it. It cannot by itself show whether this cyst is purely arterial or is excavated in the substance of a tumour. Generally, however (I am far from saying always), there are other symptoms and appearances, on which a correct diagnosis can be founded, or at any rate such a doubt be shown to exist as will be sufficient to preserve the patient from any superfluous operation. These tumours with pulsating blood-cysts are almost always cancerous, and they are almost always connected with the bone; but neither assertion is universally true. An interesting and, as far as I know, unique case was under my care in this Hospital in the year 1872, in which the kidney was converted into a large mass of cavernous malignant matter, which pulsated visibly in the loin, and presented an audible bruit, with no affection of the spine or any other bone. The history is related in the *Path. Soc. Trans.* vol. xxiv. p. 149, and the preparation is in the Museum of the Royal College of Surgeons, so that I need not relate the case here at length; suffice it to say that the diagnosis was made correctly, so

far as to exclude the idea of aneurism, by considerations somewhat similar to those which led Mr. Moore at first to incline to the correct view of his own case (sup. p. 182), viz. 'although there were both pulsation and bruit, they were so little marked, considering the great growth of the mass, that they rather weakened the idea of aneurism than supported it. In fact, so soft a bruit coexisting with slight pulsation in a portion only of a large tumour are symptoms rather characteristic of the pulsatile form of cancer than of aneurism' (see *Path. Soc. Trans.* ut sup. p. 150). The same considerations led to a correct diagnosis in the case well known to all students of our Museum, which has furnished the beautiful preparation of malignant pulsatile tumour of the ilium marked ser. ii. no. 231, and which was long ago under Mr. Prescott Hewett's care. I subjoin the following description from the printed catalogue:

The patient, Charles W., æt. 51, was originally admitted into the Hospital in October 1855, with a small tumour in the neighbourhood of the sacro-sciatic foramen, pulsating very distinctly. The disease was referred to an accident eight months before admission. The case was distinguished from aneurism of the gluteal artery by some difference in the character of the pulsation from that usually found in aneurism, by the fact that pressure in the sacro-sciatic notch did not control the pulsation, and by the absence of bruit. Palliative treatment was adopted, and after a stay of some months in the Hospital, he left to resume his work as a gardener. He returned again in November 1856, the tumour having increased very much on the nates, and now presenting also in the iliac fossa, where fulness and pulsation could be perceived on deep pressure. The lobulated form of the tumour, and its difference in consistence in different parts, could now be plainly felt. The pulsation was strongest in the softest part of the tumour. He was emaciated and anxious, and suffered from paralysis of the sphincters of the bladder and rectum. Blood was passed occasionally in the water. During his stay in the house the lower extremities, especially the left, became very cedematous, and he sank gradually, dying April 15th, 1857, about two years after the first invasion of the disease.

A very large mass of malignant disease was connected with both surfaces of the left os ilii, and the tumour has been laid open by an incision in one place (on the dorsum), in order to show its cavernous structure. The admission of blood from the arteries of the tumour into these large spaces accounted for the distinctness of the pulsation. The ilium and sacrum were extensively corroded, the sacro-iliac joint destroyed, and spiculae of bone were found scattered about the substance of the tumour.

The two parts of the tumour, on the opposite sides of the ilium, are continuous, both through the substance of the bone and around the

sacro-sciatic notch. Large masses of the disease were also seen in both internal iliac veins, the coats of which (as well as of other veins in the neighbourhood) are infiltrated in many places. Malignant deposits of similar appearances were also found in the left kidney.*

In that case, indeed, there was little difficulty in making a correct diagnosis, since there was no bruit, and the presence of the tumour on both aspects of the bone was a fact very difficult to reconcile with the hypothesis of aneurism. And it will be noticed as an interesting circumstance that hæmaturia existed both in my patient (p. 184) and in Mr. Prescott Hewett's, and that the same symptom must have also existed during life in Mr. Moore's patient, though the existence of cancer-cells in the urine was only verified after death.

These cases, I think, sufficiently show the points of resemblance between pulsatile cancer and aneurism, though of course numerous others bearing in the same direction might be quoted, such as Mr. Guthrie's celebrated case, in which the common iliac was tied, and in which the patient was fortunate enough to recover from the operation.†

Another instance, however, must be quoted, which occurred some years ago, but which was brought strongly to the recollection of the surgical staff of the Hospital by one of popliteal aneurism, still under treatment, and to which I shall refer presently, where the same doubt existed as in this instance as to the nature of the tumour in the popliteal space; though in the recent case the symptoms were sufficiently well marked to lead to a correct diagnosis.

I subjoin the notes taken from the Hospital post-mortem- and case-book.

William B., a carpenter, æt. 29, was admitted to Fitzwilliam Ward on June 14th, 1865, under Mr. Pollock's care, suffering from malignant disease of the knee.

History. Fifteen weeks ago he wrenched his knee in lifting a piece

* *Museum Catalogue*, p. 139.

† See the observations which I have made on this case in a lecture at the Royal College of Surgeons, published in the *Lancet*, July 11, 1874. I have there tried to show that a correct diagnosis might have been made in this case from the same fact as was noticed in Mr. Hewett's, viz. that the tumour presented on both sides of the spine and pelvis—a fact very difficult to reconcile with the theory of gluteal aneurism.

of wood which was very heavy. This was followed by pain and swelling, which were increased up to his admission.

Symptoms. The right knee-joint was much enlarged, partly from effusion within the joint, and partly from thickening around; the skin over it was white and pasty-looking, and the superficial veins enlarged. The condyles of the femur were enlarged, and there was a large mass, probably connected with the femur, filling up the popliteal space. The man looked pale, anxious, and thin. The measurement of the limb was 16½ inches. On the 23d of June pulsation was detected for the first time, principally in the knee, just on the inner side of the patella, and upon applying a stethoscope a distinct bruit could be heard. The knee was increased in size, measuring 18 inches. Upon making pressure upon the femoral, the swelling was diminished. A spring tourniquet was applied, and morphia was administered. June 30. Has had the tourniquet applied till to-day; the pulsation is not increased, but the swelling is greater, and he is in severe pain. The femoral artery was ligatured in the middle of its course by Mr. Pollock. July 2. Feels pretty comfortable; pulsation can be felt at one spot in the knee; all thrill has gone. Opium, gr. j. 4tis horis. July 5. Pulsation has returned in posterior tibial; foot warm; less swelling. Is in rather more pain to-day. Hst. salin. eff. b. d. Vin rubri, ℥ix. July 8. Pain better; wound healthy; pulsation can still be felt. July 10. He had an attack of secondary hæmorrhage last night, requiring ligature of both ends of the vessel, which was found to be entirely ulcerated through.* He was very much collapsed; this morning there is considerable oozing. Tinct. opii, ℥xxx. July 12. Has rallied somewhat, and to-day expresses himself as feeling much better. July 15. Had an attack of rigors this morning; seems very low; face blanched. Vin rubri, ℥xij. July 17. Wound sloughing. He is covered with a profuse sweat, and his skin is tinged. Face sunken and anxious; evidently sinking. July 18. He died this morning at ten o'clock.

His body was examined fifteen hours after death.

Morbid appearances. Externally: body emaciated. There was much flabby diffuse swelling about the right knee, before and behind, chiefly the latter. There was a considerable incision in the upper part of the thigh. One ligature that was attached to the lower end of artery remained in slender connection with the parts. Much serum was infiltrated in the neighbourhood.

Condition of vessels. The vein and artery were closely adherent to each other by an infiltration of fibrous lymph in their neighbourhood. The artery had been secured by ligatures, which had come away. The upper end contained a firm yellow plug, which extended about an inch upwards from the ligature. The lower end contained a small loose clot of the same kind. The coats of the vessels were perfectly natural throughout. The vein had also been secured by a ligature; it had been included in that which had gone round the lower end of the artery. At this point the severance in the vein and artery, though irregular in shape, exactly corresponded in the adjacent sides; in the upper two or

* This operation was performed by me in Mr. Pollock's absence.

three inches of the femoral vein was a buff-coloured plug, soft in texture, which under the microscope proved to contain much granular matter (broken-down coagulum) mixed with pus-corpuscles. This was somewhat adherent; below it the vein was much narrowed, and contained only a few shreds of laminated coagulum on the walls. There were similar deposits in the lower segment of the vessel. Both were raised up by the tumour, and passed over it and distinct from it. The knee was surrounded by a quantity of semi-fluid pinkish matter, blood mixed with soft cancer, or possibly pus, which ran out freely from the incisions. There was a large mass of irregular soft encephaloid cancer growing from the back of the femur. It extended quite across the widest part of the popliteal space, and reached from the interval between the condyles to the top of the popliteal space; its limits were, in fact, almost exactly those of that space. It projected about two inches, somewhat overhanging the condyles. In front of the bone was a round prominence, which was rather towards the inner side. It was soft, and intermixed with spiculæ of bone.

This was an instance of mistaken diagnosis, and the treatment, no doubt, proved fatal. Still it was only after great hesitation and careful consultation between the surgeons that the ligature of the artery was undertaken. It was felt by the consultants that there was sufficient doubt about the nature of the tumour to justify the milder and less radical operation of ligature of the artery in place of amputation, under the hope that if the progress of the case should negative the idea that the tumour was aneurismal, the limb could afterwards be amputated. And, looking back on the case, I regret that I did not amputate the limb when summoned to the man in Mr. Pollock's absence. The question was mooted between Mr. Hewett—who kindly gave me his assistance—and myself; but we thought that there was such slight prospect of the patient—already exhausted by profuse hæmorrhage—surviving an amputation, which must have been performed above the seat of ligature, that we decided first to try and secure the vessel. The matted and infiltrated condition of the tissues rendered this difficult, especially by artificial light, and led to the inclusion of the vein in the lower ligature. This, though it did not lead to gangrene, was most likely the starting-point of the phlebitis and pyæmia which caused death. The case agrees with the three previously cited, in showing that such malignant tumours, though they may have both pulsation and bruit, do not usually present the

same universal pulsation as an aneurism ; and the same may be said of the bruit. Therefore such a tumour, in which the pulsation is partial, and possibly intermitting, perceptible at one time and not at another, is always to be looked upon with grave doubt. The resemblance to aneurism increases as the proportion between the blood cyst or cysts and the solid part of the tumour increases. And, indeed, if that proportion be very large, so that the tumour consists of little more than a large blood cyst surrounded by a capsule of cancer mixed with the bone or other tissue in which it has grown, the resemblance becomes so perfect that the mistake may be made even after dissecting the tumour. Few of his readers can doubt that this was so in a case which Mr. Liston has described and recorded, in vol. xvi. of the *Edin. Med. and Surg. Journal*, as an 'ossified aneurism of the subscapular artery,' in which he excised the scapula ; and if such a cystic tumour were to pulsate, as it very likely might, it is hard to see how it is to be diagnosed. Deriving its supply, as is usually the case, from one main trunk, it must cease to pulsate, and must be much reduced in size when that trunk is compressed ; and many cases prove that it may have a bruit sufficiently like aneurism to deceive the most expert. Still these instances of very large cysts in malignant pulsatile tumours are rare, and, as a general rule, the diagnostic signs just described are sufficient. To these may be added, in many cases, the attachment of the tumour to the bone. In a case of popliteal aneurism now under Mr. Rouse's care, to which I have already referred, the nature of the tumour was at first doubtful, and one of the signs which led to a correct diagnosis was, that the tumour appeared movable on the femur. But I have seen even the apparent connection of the tumour with the bone lead the surgeon astray. In our Museum, series vi. no. 226, is a specimen of aneurism of the ulnar artery taken from a lad, æt. 17, admitted under the physician's care for disease of the heart. When the pulsating tumour in the forearm was observed, Mr. Pollock was requested to see it, and expressed the opinion that it was an aneurism. On consultation, however, his opinion was overruled, since it

appeared that some thickening could be felt around the ulna. The boy's condition precluded any treatment, so that the mistake was of no consequence. But this mistake might easily be committed in aneurisms, which, like those of the profunda femoris, lie at a great depth, and are apt to press upon and even denude the bone on which they lie.*

Such I take to be an account, imperfect it may be, but in the main correct, of the difficulties in the diagnosis from aneurism of tumours which pulsate, but are not aneurismal.

Let us now turn to the still more difficult subject of tumours which are aneurisms, but which do not pulsate. My attention was forcibly called to this subject by the following case, which recently occurred under my own care, and in which, being alive to the possibility of the disease being an aneurism of the abdominal aorta, I carefully examined the patient with a view to the detection of that disease, and think myself, therefore, entitled to affirm that the usual symptoms of aneurism were absent, since the patient was repeatedly examined, not only by myself, but in my absence by Mr. Pick, who was then in charge of my patients, as well as by the registrar, house surgeon, and students. The subjoined notes of the case were taken by my clinical clerk, Mr. H. Collier.

Richard F., æt. 25, seaman, was admitted under my care on September 9, 1874.

History. Sixteen months before, he first complained of pain in his chest and difficulty of spitting up phlegm, but never spat any blood. Shortly after this he complained of pain in his back in the lumbar region and in the left hip; has not been lame, but complains of pain when he stoops. No history of consumption in the family. On admission, he was a pale unhealthy-looking man, and complained of great pain across the lower part of his back and across the region of the stomach. There appeared to be some want of motion between the lumbar vertebræ when he stooped down, but there was not much tenderness about this region. There was a little swelling in the left groin, but no impulse to be felt in it. He holds his abdominal muscles very tense.

On Sept. 12 it is noted that he complained of pain in his left shoulder and hip, the pain in the back and abdomen continuing. Under the idea that the pain was rheumatic, he was ordered potass. bicarb. 3ss.; hst. pot. cit. ʒiiss. t.d. Sept. 15. Pain not at all affected by the medicine. Abdo-

* See a lecture delivered by me recently at the Royal College of Surgeons, *Lancet*, Oct. 7th, 1874, p. 545.

minal muscles still very tense, feeling almost like a board. Omit med. Oleum ricini, ʒss. Sept. 17. Hst. morph., o.n. Sept. 18. Sp. vin. gall. ʒij. Sept. 19. Complained of much increased pain in the lower part of the abdomen and back; it was so acute that it drew him double. He looked very much pulled down. Appetite bad. Mr. Pick examined his abdominal aorta and abdomen generally, but could detect nothing abnormal with the stethoscope. Sept. 23. The pain is still very severe, and he is unable to sleep on account of it. Tongue coated. Pulse, 104. Sept. 24. Pain has increased, and he is moaning, more or less, all day. Tinct. hyoscy. ʒss.; tinct. opii, mʒv.; ammon. carb. gr. v.; mist. camph. ʒiss., 4th hor. Sept. 26. Injec. morph. gr. j, twice a day in the abdominal region. Sept. 28. Pain is less after the injection of morphia for about four hours. The walls of the abdomen are still very rigid. It was conjectured that the pain might be simulated, and accordingly the patient was injected with water, but he got no relief from the pain, as he stated. Sept. 30. Pain just the same.

Oct. 1. The actual cautery was lightly applied down the back. Oct. 7. No alteration, except that he seems lower. Oct. 6. Mr. Holmes examined the patient thoroughly, and made him bend backwards and forwards. Also examined the aorta with a stethoscope, but could detect no bruit, pulsation, abdominal tumour, or affection of the pulse in the lower arteries. On Oct. 9 he complained of greatly-increased pains in the abdomen, and began rapidly to sink. When seen the pulse was scarcely perceptible, and the extremities cold. He died at 5.15 P.M.

Post-mortem examination. The heart was found natural; weight, 14 oz. In the commencement of the aorta were large patches of soft atheroma; the remainder of the thoracic aorta was but slightly atheromatous.

Abdomen—Peritoneum. There was a large quantity of recent blood-clot in the gastro-hepatic omentum, and a less amount in the great omentum. This had escaped through a rent in a large aneurism of the abdominal aorta.

Aneurism. This aneurism was of the size of two fists, and projected from the front and left side of the abdominal aorta, with which it communicated by an opening that admitted five fingers. The posterior wall of the sac was formed by the bodies of the 10th, 11th, and 12th dorsal and 1st and 2d lumbar vertebræ, and these were extensively eroded, the intervertebral disks standing out prominently and uninjured. The sac contained about a pound of blood-clot, the greater part of which was laminated.

The liver, spleen, and kidneys were natural. It was impossible to ascertain certainly where the sac had given way, as it could not be removed entire, owing to its adhesion to the bones of the spine; but a small triangular rent close to the spine seemed the most probable source of the hæmorrhage. The whole of the abdominal aorta was very atheromatous, some of the patches having attained the calcareous stage.

This was the most striking instance which ever came under my notice of an aneurism in which, after careful and repeated examination by several observers, directed ex-

pressly to the detection of aneurism, it could be affirmed that none of the usual symptoms—pulsation, bruit, or any other—could be detected. It is true that the spasmodic tension of the abdominal muscles prevented the satisfactory examination of the abdomen; and I now regret that I did not put the patient under the influence of chloroform. Had this been done, the tumour might, perhaps, have been detected. And I would throw out the suggestion incidentally whether in cases so obscure as this it would not be justifiable to pass the hand into the rectum, in the manner which Mr. Bryant in this country and Professor Simon at Heidelberg have introduced into practice. This case, however, does not stand by any means alone as an instance of abdominal aneurism in which the usual signs have been absent. The following case occurred several years ago at the Hospital, and was briefly mentioned in a former volume of these *Reports*, from which it was quoted by Dr. S. Smith in the paper on which I have commented on page 178. The notes which I append are taken from the Hospital post-mortem- and case-book.

John W., æt. 39, was admitted Nov. 21, 1866; and was transferred from the physician, under whose care he had been for a fortnight, to Mr. Prescott Hewett's care. He stated that four years before he fell from a height of 18 ft., injuring his left shoulder. Three years after this he had pain in the small of his back. More than two months before admission he had pain in the left side, extending from the ribs to the hip, groin, and knee. For the last five weeks the pain had made him limp, and his bowels had been constipated; he also stated that since his admission he had three attacks of shooting pains, extending from the hip to the leg, with twitching spasms and dysuria. There was tenderness on percussion over the last lumbar vertebræ and the sacrum; the spines of the vertebræ were irregular and very tender; in the left inguinal region was a hard swelling, tender and painful, and there was tenderness and pain all round the lower part of the left lumbar region. On the 29th the swelling had decreased in size, and on the 18th of January he became suddenly faint at about 1 P.M., with fixed eyes and drawn features; and died at 2.25 P.M.

Morbid appearances. Externally the body was in good condition.

Thorax. The lungs were collapsed and anæmic. The left ventricle of the heart was semi-contracted, the right dilated; both were empty. The valves and structure were healthy. The aorta was slightly atheromatous.

Abdomen. There was a large quantity of coagulated blood in the peritoneal cavity. All the abdominal viscera were healthy, though

rather pale and anæmic. In the left lumbar region, and extending down into the left iliac fossa, was an enormous aneurism, which was situated behind the left kidney and descending colon; the sac of the aneurism was incomplete behind, the posterior wall of the cavity being formed by the bodies of the vertebræ and lower ribs, which were exposed and eroded, and were in direct contact with the blood in the sac. The sac was full of coagulated blood, and on its anterior aspect presented a lacerated opening about an inch in length, through which the blood had been poured into the peritoneal cavity. The walls of the sac did not appear to be formed of the coats of the aorta, but simply of a consolidation of surrounding tissues; it communicated with the abdominal aorta by a rounded opening, the size of a shilling, on its posterior wall. On passing the finger through this opening it immediately came down upon the exposed bone. The bone in the left iliac fossa was exposed, but the sacro-iliac joint was sound.

In this case the symptoms of spinal affection were so marked, and the usual symptoms of aneurism so completely absent, that I believe no hesitation was felt in the diagnosis of spinal disease; and when the tumour subsided Mr. Hewett pointed out the case to his class as an instance of the benefit which sometimes is obtained in cases of spinal abscess by refraining from puncturing them; and I have heard Mr. Hewett say that if he had been in the habit of opening such abscesses he should certainly have punctured this tumour.* Nor can I see on what the diagnosis can be founded in such cases when bruit is absent. We are not indeed entitled to say positively that this was the case in the instance before us, since there is no record of auscultation having been practised; but in my case there was certainly no bruit. The absence of pulsation in these aneurisms is, I conclude, due to imperfect formation of the sac, or to some obstruction at its orifice. What causes the absence of bruit is a still more difficult question; but it is a very familiar fact that large aortic aneurisms in the thorax often have no bruit whatever. And I believe that if the records of surgery were searched, plenty of cases might be found in which either an abdominal aneurism has been opened hastily, or in which the surgeon has more prudently commenced with an exploratory puncture, and then found to his surprise that the supposed abscess was really an aneurism. A practical caution of great value may

* See also a debate at the Clinical Society on Mr. Rouse's case (mentioned on p. 185), reported in *British Medical Journal*, Dec. 19, 1874.

be deduced from such cases as these—that is, in a case of supposed psoas abscess, in which the existence of matter is not absolutely certain, never to open the abscess without an exploratory puncture. In the present day the aspirator is extensively used in psoas abscess, and a puncture with the aspirator could do little or no harm if the tumour turned out to be aneurismal. In fact, I believe that in many cases the withdrawal through a small puncture of a moderate quantity of the blood in the sac would do a great deal of good—would relieve the tension and postpone the time of rupture. Dr. Gairdner has related a case in which a man suffering from aneurism of the aorta derived so much temporary benefit from occasional external hæmorrhage, spread over a period of a year, as to be enabled to leave the hospital relieved of cough and dyspnæa, and feeling perfectly well; and as I am writing these lines I am informed of a case (at St. Thomas's Hospital) in which an aortic aneurism has recently been tapped, with at any rate immediate good results.

It will be worth while, perhaps, to speculate a little more at length on the cause of the absence of pulsation in aneurisms—a subject on which I have found little in the authors whom I have consulted.

Pirogoff says that the following are the four main causes which hinder the pulsation of tumours which are in direct communication with arteries:

1. When a solid coagulum of blood or fibrine fills the cavity, especially if the arterial opening is a narrow slit, or if blood has been extravasated out of the artery into the cellular or muscular tissue.

2. When blood is poured out, not from a trunk artery, but from a collateral into a previously-existing cavity, particularly when that cavity is bound down by tense fasciæ or muscles.

3. When a very large aneurismal sac compresses the vessel above itself.

4. When the growth is more a telangiectasy than a true aneurism, and is connected with considerable hypertrophy or medullary fungus in the cellular tissue or bone.*

* He also lays stress on the fact that in these doubtful cases auscultation

The first and third of these propositions are the only ones which touch our subject, the cases spoken of under the second and fourth heads not being true aneurisms; and as to the third proposition, I can only say that, though supported by very high and very ancient authority, the idea that aneurismal tumours can so compress the artery above them as to suspend the circulation through the tumour is still unproved. It is, however, certainly possible. My own impression is somewhat to the same effect as Pirogoff's, contained in his first proposition, *i.e.* that the usual cause of absence of pulsation in an aneurism is some change, either in the contents of the tumour near the mouth of the sac or in the shape of the orifice itself, whereby the direct and free interchange of blood between the sac and the artery is hindered. It must be remembered that the pulsation of the tumour depends on this interchange of blood.

Every one must have noticed the striking fact, that a large artery, say the popliteal, may be torn across, the patient surviving without gangrene for many days, and no pulsation occurring. If he dies, or the limb is removed, a large quantity of blood is found in the cellular spaces or the knee-joint, partly solid and partly fluid. But this bleeding cannot have been continuous and free ever since the accident; for if it were, it would have caused either death or gangrene in a very few hours. Evidently, as Pirogoff says, the blood extravasated into the neighbouring tissues has so obstructed the arterial opening as to prevent more than a moderate and noiseless oozing of blood, which gradually accumulates, and gradually destroys the limb. So in an aneurism which bursts by a free opening. The pulsation stops; for the blood injected into the tumour through the arterial opening is no longer restored by the resilience of the sac to the arterial current, but oozes through the rent until its pressure in the surrounding tissues causes so much resistance that the blood passes more easily down the natural channel; and then only occasional and comparatively slight leakage will

may assist the diagnosis, though it is possible that the same causes which prevent pulsation may also hinder the formation of bruit.

take place at the rent. But in these cases, as the shape and size of the arterial opening may probably remain unaltered, bruit may persist; and as some return of fluid into the artery may take place near the mouth of the sac, there may be an indistinct pulsation, only to be found by careful investigation. The effect of the shape and patency of the orifice on the pulsation and bruit is obvious. As far as the bruit is concerned, any one can satisfy himself, by merely trying to imitate an aneurismal bruit with his lips, that no bruit can be produced if the orifice of the lips be either too large or too small; and it should be remembered that an opening which looks quite patulous after death may have been almost closed during life by the pressure of neighbouring parts. And with regard to the pulsation, depending as this does on the interchange of fluid between the tumour and the artery, it may easily be suspended by any obstruction near the orifice, or by a partially solid state of the contents. In such cases, the only test is that which Pirogoff gives (see p. 181) of the slight change in size which takes place when the main artery is compressed above the tumour; and this is very doubtful.

I say nothing here as to solidified aneurisms, which are sometimes taken for cancerous tumours. One such specimen is in our own Museum—a popliteal aneurism of enormous size, the pressure of which on the vein caused gangrene, necessitating amputation. The nature of the tumour was not discovered till after the operation; but it could not be said that the treatment was erroneous. The Museum of the College of Surgeons contains several similar specimens. In such cases, a correct diagnosis can only be founded on an accurate history.

To sum up, then, the conclusions which this paper is meant to enforce, they are as follows:

1. The difficulties in the diagnosis of aneurism, although they are real enough, are not so frequent as might be inferred from the statements of some authors, provided that all the means of examination are carefully employed. Most of the errors which are recorded have depended on the omission of stethoscopic examination, or occurred before the invention of the stethoscope.

2. Of tumours which pulsate, but are not aneurisms, some are abscesses, and others pulsatile cancers. The diagnosis of the former is generally possible, with careful examination, since they can hardly have a true aneurismal bruit unless they communicate with the artery, when they would become aneurisms; but the diagnosis of the latter is often attended with the most serious difficulties, though on carefully and repeatedly examining the symptoms the proper diagnosis can usually be made.

3. The occasional occurrence of aneurisms which do not pulsate and have no audible bruit is a motive for the greatest caution in opening any presumed abscess in the situations where such aneurisms may be found, and justifies an exploratory puncture. Such exploration is more likely to do good than harm if the swelling should turn out to be an aneurism.

4. In these more difficult cases it is necessary, not merely to ascertain the existence of the ordinary symptoms, such as pulsation and bruit, but also to compare their degree with that which might have been expected if the tumour were aneurismal.

XV. ON CONSUMPTION A FORM OF SEPTICÆMIA.

By WILLIAM MARCET M.D. EDIN., F.R.S.

A CONSIDERATION of the subject of phthisis very naturally leads to an inquiry as to how it is that patients with a deposit in one or both of their lungs, but in the enjoyment of good health in other respects, should, in some cases, and without any warning, be attacked all at once by hæmoptysis attended with fever, rapid wasting of tissue, and great prostration. At the same time mischief spreads in the lungs, moist sounds appear at and near the consolidated part, and the area of dulness extends. These acute symptoms very often, I fear, defy every treatment, and death supervenes a month or six weeks, perhaps a little later, after the outbreak of the hæmoptysis and febrile symptoms. Another question of the same nature will also suggest itself, referring to cases of rapidly fatal pneumonia, of which the awful suddenness of the attack, excessive prostration, high fever, cerebral symptoms, and fatal termination within from three to ten days will leave in the medical attendant an impression never to be forgotten. An answer to these questions forms the subject of the present communication. I have given in the *British Medical Journal* for Oct. 24th, 1874, a short sketch of the views I entertained as to the septicæmic nature of consumption and pneumonia in their acute or active form, such views being in accordance with those proposed by Dr. Sanderson, and also advocated, I understand, by other distinguished physicians.* It is now my intention to enter more fully into this subject.

* Dr. C. T. Williams considers that phthisis may originate from septic influences tending to blight and corrupt the bioplasm of the blood or lymph-

The maintenance of life and health is a perpetual conflict between the phenomena of nutrition and those of physical decomposition or fermentation and putrefaction. The more vigorous the state of health, the more thoroughly are these physical changes kept at bay; but in proportion as health gives way, so do these physical phenomena, creeping on slowly and insidiously, obtain a hold upon the living body very difficult to shake off. We all know that tissues are ever changing, a constant substitution of fresh molecules to old effete molecules being in progress. This change is a particularly active process, with respect to muscular tissue, for example, requiring, as I have shown ('An Experimental Inquiry into the Nutrition of Animal Tissues'), not only that blood should supply the substances necessary to the new molecules of muscle, but moreover, that it should yield a comparatively large proportion of potash, the only object of which is to combine with the phosphoric acid of the assimilated or organised molecule, so as to make it into a crystalloid phosphate, which substance moves out of muscle back again into the circulation by a mere physical process of diffusion. A movement of a somewhat similar kind takes place, when surface water, with certain substances it holds in solution (others being left in the soil), finds its way out of a field through the drain-pipes. Every fresh molecule of muscle requires a supply of phosphoric acid and albumen with small proportions of potash and magnesia, and these substances have apparently to undergo in the blood a preliminary change, establishing new attractions between each other, in order to become converted into bioplasm or nutritive material. This material is finally organized by undergoing a transformation of a purely morphological nature. Some similar phenomenon must also take place in blood with respect to the nutrition of blood corpuscles; thus there is no part of the living body that is not in a constant state of molecular change, except hard effete matter, such as the nails, which are out of reach of the circulation.

atics generally, and thus sow the seeds of decay. ('On the Effects of Warm Climate on the Treatment of Pulmonary Consumption,' *Medico-Chirurg. Trans.* vol. iv. p. 285.)

If it is borne in mind that the body consists of a mass of molecules always moving, and that the amount of heat required for this molecular change implies the development of a considerable force or energy, it will be readily understood that no physical decomposition or putrefaction of these molecules of matter in physiological motion can possibly take place. I might explain my meaning by referring to a stream of water, which will not freeze even in very cold weather, because the molecules of the water are always in motion, and cannot be acted upon by another force possessed of a tendency to change the molecular form of the fluid; but as soon as it becomes still, then the opposition to the new arrangement of molecules under the influence of cold no longer exists, and ice is formed.

Now, in the same way as in running water fresh molecular attractions or arrangements cannot take place, because of these molecules being in constant motion; so it is that in the living body, where the various molecules of tissue are ever moving, the arrangement of these molecules, necessary for the operation of decomposition or putrefaction to set in, cannot take place. The comparison of nutrition to a stream is defective, however, in this respect, that running water is made up of molecules in movement, and undergoing but a relative change of position; while in the process of nutrition of tissue there is not only a movement of molecules, but also a destruction of old molecules and formation of new ones. These several changes take place through the agency of some power which is not physical—at all events not so in the usual acceptation of the word; but whatever be the nature of the present force, it is this united molecular movement and change which, I verily believe, acts as the cause so thoroughly preventing physical decomposition or putrefaction from taking place during life and in health.

If, however, that wonderful mobility with which living molecules of tissue are endowed should become weakened, and blood lose its power of preparing phosphoric acid, potash, and albumen for the manufacture of flesh; if the morphological change of nutritive material into organised tissue should be lessened in its activity or arrested, and

blood yield an insufficient quantity of potash to combine with the whole of the phosphoric acid of an organised molecule;* again, if the constituents of mature tissue should no longer become transformed into substances diffusible, allowing of their rapid passage into the circulation,—then physical decomposition will set in, as ice will form in a stream of water on its course becoming slackened or arrested.

The circumstance that urine is, as a rule, constantly being secreted in the human body, both during and after digestion, and at night as well as in the daytime, appears to me to show that the phenomenon of the nutrition of tissues continues uninterruptedly. Dr. J. L. Prevost of Geneva, after producing an artificial hernia of the bladder on a rabbit, and incising this organ in a longitudinal direction, observed the urine to run out as a rule alternately from each ureter, with an interval of several seconds between each ejaculation. These emissions coincided with the termination of the vermicular contraction of the ureter, clearly seen to extend to the bladder. In the rabbit, under normal conditions, from seven to eight emissions take place per minute. This phenomenon continues, I understand, uninterruptedly all day long.†

Pursuing this same train of thought, and now taking into consideration the changes occurring in the body in disease, it will be readily observed that they frequently bear the character of a simple physical decomposition.

In some cases as in fevers, ammonia, one of the common products of decomposition of animal matter, is formed in comparatively large amount, while it is only met with in very minute quantity as a normal constituent of the living body; expired air containing traces of this substance,

* I have shown that the phosphoric acid of an organized molecule of muscle combines with potash into either a neutral common tribasic phosphate or pyrophosphate, being removed under that form. (*Proceedings of the Royal Soc.*, No. 128, 1871.)

† 'Note relative à l'action de la muscarine (principe toxique de l'agaricus muscarinus) sur les sécrétions pancréatique biliaire urinaire.'

Dr. Prevost met, at the Geneva Hospital, with a case of congenital extrophy of the bladder in a man, and observed on this occasion the same alternate emission of urine from each of the ureters.

and there being often, perhaps constantly, crystals of ammonico-magnesian phosphate in the faecal matters.

In severe cases of typhus fever the exhalations from the skin and the discharges from the bowels contain ammonia. Reuling (Murchison, *Treatise on Continued Fevers*, p. 144) found that the air expired in certain diseases, such as typhus, uræmia, and pyæmia, contained an excess of ammonia. These results were subsequently confirmed by the independent researches of Richardson. Dr. Murchison adds that in severe cases of typhus the breath has undoubtedly often an ammoniacal odour; he observes in enteric fever that the stools are very often ammoniacal.

Another circumstance which confirms the view that ammonia in fevers is due to decomposition, is the rapidity with which putrefaction takes place after death in this class of diseases. 'In most cases (in typhus) there is a tendency to rapid putrefaction after death, more rapid than after death from other diseases at the same time of the year' (Murchison).

In diabetes the excessive excretion of sugar may be readily accounted for by the occurrence of some circumstance which arrests the peculiarly vital transformation of the amyloid substance, or glucogen, of the liver. This remarkable substance, discovered by Cl. Bernard, undergoes transformation into sugar immediately after death, a phenomenon which may be considered as one of the very earliest post-mortem changes.

In albuminuria (Dickinson, *Pathology and Treatment of Albuminuria*, p. 234), it is known that the ammonia is increased in quantity. This may be owing to a decomposition of urea present in excess in the blood; at all events, it originates from some physical change taking place in the living body, and opposed to vital power.

In consumption, at first sight no physical metamorphosis appears to take place in the body before death; but such is not the case. The expectoration may, towards the termination of the disease, emit an obvious faint smell of incipient putrefaction; moreover a change invariably takes place in the chemical composition of the tissues in phthisis, which possesses a purely physical charac-

ter. First, in muscular tissue the chlorine and soda, as I have shown experimentally, are greatly increased beyond their normal proportions in health. My inquiries yielded 0·167 parts of chlorine (mean of 11 determinations), and 0·237 parts of soda (mean of 6 determinations), for 200 parts of muscular tissue in health. The power which, under normal circumstances, prevents the diffusion of chloride of sodium from blood into muscles apparently no longer acts, or is much weakened, in phthisis some time before the fatal termination, allowing of the chloride of sodium contained in the blood while circulating through flesh, to diffuse itself into that tissue; hence it is that we find it charged with common salt after death from that disease, one pound of muscle then containing a mean of 21·28 grains of common salt, instead of 9·6 grains.

There is another change I have constantly met with in muscular tissue in phthisis, which looks like a commencement of physical decomposition; I am now alluding to the moist and soft state of these muscles observed in a post-mortem examination; while in all other cases, I believe, the muscles look dry and firm, if examined shortly after death.

This change in consumption appears to me to be owing to an alteration, of a physical nature, in the state of the water in the tissue. A modification of the same kind takes place after a time in the flesh of animals slaughtered for food, and in perfect health; thus meat, after hanging up in a larder for a few days, will exhibit this soft and damp appearance; and ham, even cooked, will often just before it is unfit for food, become quite damp and even wet, a well-known unmistakable sign of incipient decomposition. This change appears to me to begin some time before death in phthisis, a soft, flabby, and often puffy consistence of the muscles of the lower extremities being frequently observed during life; and the examination of muscles, a few hours only after death from phthisis, certainly conveys the idea that the alteration took place before life was extinct. It is true that the proportion of water is slightly greater in muscular tissue in consumption than it is in health, amounting to a mean of 58·27

grains for one pound of flesh, instead of 5390 grains; and it is just possible that the dampness is due to that excess of water, although the change appears to me much more likely to result from a difference in the actual physical condition of the water.

I might extend the present remarks, but those I have thought of offering show that, as the vital force becomes diminished, and the power of nutrition of tissues lessened, the tendency to some physical change peculiar to organic matter deprived of life gradually obtains the upper hand, and should this change pursue its course it must eventually destroy life. Let us now consider the case of a punctured dissecting wound. Animal matter undergoing decomposition is introduced into a healthy tissue by accidental inoculation: if the subject of the accident is strong and in good health, the probability is that no mischief, or a mere local inflammation, will follow. How many students prick themselves while dissecting and how very few suffer in consequence of this inoculation! Others, however, who may be in ill-health at the time or exhausted from overwork, will not escape; perhaps on the second day after the accident the first symptoms of septicæmia will set in, followed two or three days later by a fatal termination. These are the facts; they are easily explained. Where the molecular movement of nutrition is strong and active, the poison has not time to act, the molecules of tissue changing too rapidly to allow of an abnormal kind of molecular metamorphosis to set in; a local inflammation may result from the inoculation, leading perhaps to the formation of a deep sinus; but if any further absorption of matter undergoing decomposition takes place at the seat of the inflammation, it can do no farther mischief, because of the molecular changes in healthy living tissues defying decomposition and putrefaction. On the other hand, where the molecular movement of living tissues is slow and in want of energy, as it would be in ill-health or a state of fatigue from mental overwork, then the inoculated matter will have time to act upon the molecules of tissue before they undergo their normal change, and generate decomposition in the whole

mass, causing a rapid cessation of the phenomena of life. In the operation-ward of an hospital a patient, after undergoing an amputation, is often at the time in a low state of health; at all events, he will be inevitably very much weakened by the operation, and the power his tissues possess of wasting away and forming afresh is considerably reduced. In consequence of this state of his body a tendency to physical change must set in.

After reading Mr. Erichsen's suggestive essay on *Hospitalism*, the mind dwells involuntarily on hospital septicæmia, and the means of arresting such an obvious cause of mortality—a subject the author of the essay has admirably treated. But other considerations also arise out of the present publication, and amongst these the question as to whether septicæmia is not a cause of death under other circumstances than operations, and if a putrescent matter cannot originate in the body weakened by disease, instead of being introduced at a cut surface of an amputated limb.

But before entering upon this subject, let us ascertain exactly what is septicæmia. Erichsen observes (*Hospitalism*, p. 72): 'By septicæmia I mean a blood-disease, a form of typhus or putrid fever, directly occasioned by the absorption into the system of putrescent matter from foetid ulcers, necrosing cancers, &c., which may then become self-infecting. In it there are no rigors or sweats, but extreme depression of vital power, and usually rapid death with typhoid symptoms. After death no metastatic abscesses are found. . . . It is a disease that may affect the uninjured as well as the wounded; and the reason why a person who has been the subject of a severe operation or of a serious injury is more liable to septicæmia than another appears simply to be, that his constitution has been weakened by the shock to the nervous system or by the loss of blood sustained, and that consequently he is rendered less resistant to the invasion of any disease of a miasmatic type.' And in another place of the same essay the author remarks (p. 75): 'The cause of septicæmia appears to me somewhat obscure. It does not appear to be distinctly connected with overcrowding, but rather with

the development of putrescent discharges from unhealthy or malignant ulcers. The offensive discharge from ulcerated cancer uteri is supposed by some to tend very specially to its production, and it has been a cause of death in ovariectomy, when practised in the same building in which a woman suffering from this disease was lying.'

We have now arrived at the main point of my communication; and I must beg to draw the attention to the state of the body in consumption. Before phthisis, or rather its acute or active stage, sets in, it is now generally acknowledged that there must be either a tubercular or pneumonic deposit in one or both lungs. In some cases softening of this abnormal material, with febrile symptoms follow rapidly on the inflammatory state leading to the original deposit; in others a considerable period extends between the occurrence of the primary change and the outbreak of the acute stage; it may even happen that the new growth remains for many years without giving rise to any active mischief. I have met with many illustrations of these different classes of cases. It is very obvious that, so long as people with deposits in their lungs continue healthy, the present abnormal material undergoes nutrition, otherwise it must be subjected to physical change; but this new formation, which appears to be possessed of no particular function, and must be much less abundantly supplied with vessels than healthy tissue, cannot have so active a nutrition as that of the pulmonary tissue in the sound state; and it may be safely inferred that trifling circumstances, which would exert little or no influence on the normal process of nutrition, might seriously interfere with that of such growths. Among these circumstances must be mentioned, in the first place, the presence of decomposing organic matter in the air breathed, which, acting on the abnormal material as it would upon non-living organic matter, arrests the nutrition of that material, and generates septicæmia. If the septic particles floating in the atmosphere are harmless in perfect health, it is because the molecular changes connected with the healthy nutrition of pulmonary tissues are sufficiently active to resist this power of decomposition.

The abnormal growth in the lungs, being no longer properly nourished, breaks down, the state of mal-nutrition extending to the capillary vessels, which become ruptured, and blood is brought up from the bronchial tubes. The sequel of this state of poisoning is often rapid or galloping consumption; and it must be acknowledged that a case of this kind exhibits features so closely allied with those of septicæmia, that it is impossible to overlook their near relationship. The high temperature of the body, rapidly increasing emaciation, deficient appetite, and state of prostration establish a marked connection between these two diseases. Finally, unless certain means be adopted which I shall presently refer to, death is nearly certain to close the scene, just as it does in hospital septicæmia, although less rapidly. In cases where the septic action of decomposing pneumonic deposits is less virulent, we have a condition frequently met with in consumption, slower in its progress. The main symptoms of this chronic state are a constantly high temperature, with quick pulse and steadily-progressing debility and emaciation; while the physical signs are those of consolidation and breaking down of tissue.

The object of the treatment must be to arrest the septic power of the poison which forms within the lungs, together with the physical changes resulting from its action. Medicines, I regret to say, act as a rule but unsatisfactorily towards that object; at all events, those generally in use in such cases, as quinine or digitalis. What antiseptic medicines will do towards that object remains to be seen; carbolic acid certainly appears useful, but we do not know enough of its physiological action, and cannot tell yet to what extent it may be given safely; perhaps the apparently favourable action of arsenic in some cases of phthisis is due to its antiseptic properties. Preventive measures to the introduction of septic material into the lungs, such as charcoal or cotton respirators, may also be of service. I have obtained very satisfactory results from the use of charcoal respirators, especially among hospital out-patients, who often live in an impure and tainted atmosphere.

There is a means, however, which certainly acts very

positively towards obtaining the desired effect; this is removal to a high locality, somewhere on the hills, at a station between 300 feet and 500 feet higher than that where the patient may be residing. I am alluding, of course, to those who may be living within a short elevation above the sea-level; but even should acute symptoms set in at a certain height, say 1000 feet above the sea, it is remarkable how beneficial may prove the mere fact of removing three or four hundred feet higher up.

These remarks apply not only to consumption, but as a rule to all cases with quick pulse, high temperature, debility, and a deficient state of nutrition. I might bring forward a number of instances bearing out this fact, and have already done so on other occasions. The Mediterranean coast is admirably suited to such a means of treatment, as in many places a row of hills rises within a short distance from the seaside, where patients will find comfortable accommodation at various altitudes above the sea-level. The little town of Cannes, which has an English colony increasing in number every winter, is especially favoured in this respect, villas and hotels having been built on the hills within easy reach of the town.

I make it a rule to be constantly on the watch for a rise of temperature and acceleration of the pulse in my consumptive patients, and if these symptoms with other signs of acute disease show themselves, it is my practice to urge upon them the importance of moving up at once to the hills. I have found such means successful in arresting most intractable hæmoptysis, bring severe pneumonia to a successful issue, cut short in a very few days a state of long-continued fever, and in many instances stay the progress of phthisis.



XVI. FLAT-FOOT.

By CHARLES ROBERTS.

ARTISTS and novelists are wont to point to the high arched instep, and the elastic step resulting from it, as a sign of high breeding, and it is everywhere considered a mark of beauty; hence the attempt to exaggerate it in the present preposterous and highly-injurious fashion of wearing high-heeled boots. The opposite state of flat-foot, in a greater or less degree, is a much more common deformity than is generally supposed; but from its being deemed an æsthetic rather than a physical defect, and the slighter forms giving little inconvenience to the patient, it is more commonly seen in private than hospital practice. The universal custom in this country of wearing boots, and the skill displayed by the bootmaker in shaping them, hide all but the worst cases from sight; and these being deemed incurable, the deformity is rarely seen by the surgeon. Such cases may, however, be often found in our out-patients' rooms in persons applying for the relief of other diseases.

While assisting Dr. Bridges and Mr. Holmes, two years ago, in their inquiry into the effects of factory work on the health and development of children employed in textile manufactures, a large number of cases of flat-foot came under my notice; and a recent visit to some countries in which the inhabitants, to a great extent, go bare-footed, has given me wide opportunities of judging of the extent and probable cause of the deformity, and of the means of effecting its prevention and cure. I have endeavoured to obtain some information of the extent of the disease among the adult population of this country from the returns of the recruiting branch of the army, but no statistics are to be found which will throw any light on the subject.

For convenience of reference, flat-foot (or spurious valgus) may be divided into three degrees. First, cases in which the tarsal arch has given way, but has not been

obliterated; second, those in which it is obliterated, and the foot has become quite flat; and third, those in which the plantar surface has become convex, and the tarsus projected downwards and inwards.

Of these three forms the first is by far the most common; but from the difficulty of defining the degree, and as practically it does not interfere with locomotion, all such cases were excluded from the statistics to be immediately referred to, and only the second and third forms were recorded. Few really bad cases of the third degree came under our notice; for, as the Commissioners remark in their Report, 'any extreme degree of flat-foot, such as is seen without removing the boot, or would prevent an ordinary boot being worn, would compel the sufferer to abandon factory labour, and thus he would no longer be looked on as a factory hand.'

About 10,000 children between the ages of eight and twelve years were examined. (See Report to the Local Government Board on proposed changes in hours and ages of employment in textile factories, by J. H. Bridges, M.D., and T. Holmes, 1873.) They were the children of all classes of the labouring population—factory operatives, mechanics, artisans, and agricultural labourers—and were themselves more or less employed in various occupations. Of the total number, 42·7 per thousand had flat-foot in the second and third degree; and judging from the cases which came under my immediate notice, double that number were suffering from the slighter form of the deformity.

The occupations of the children, their habits, and the sanitary state of the district in which they live, have a marked influence on the prevalence of flat-foot. Thus, among the children of the large county towns of York, Lancaster, and Chester, with the agricultural districts around them, where we found the children healthier and better developed, and where they were only occasionally employed in agricultural pursuits or domestic occupations, but chiefly at school, only 17·1 cases per thousand of flat-foot occurred. At the other end of the scale, and standing cut in painful contrast, are the children living in the large manufacturing towns, of lower physique, employed five

hours daily standing or walking about, carrying weights in the hot dusty atmosphere of the mills, and three hours in school. Among these we found the high rate of 79·0 cases of flat-foot per thousand. Among the children living in the same towns, but not subject to the strain of factory work, there were only 30·7 cases; while in the suburban manufacturing districts we found 41·9 cases per thousand among the children employed in the factories. 'The dependence of flat-foot upon occupation,' say the Commissioners, 'seems further to be indicated by the fact that its prevalence increases with the age of the children in the case of those employed in factories; whereas with those not so employed, the slight amount that is found is irrespective of age. Thus of the town factory children,

Of the age of 8 years, 15·1 per thousand were affected.

"	9	"	45·6	"	"
"	10	"	51·2	"	"
"	11	"	104·2	"	"
"	12	"	132·4	"	"

At the age of thirteen and upwards, when they work ten hours instead of five, we were not able to follow them; but it may reasonably be supposed that the progress above indicated does not cease.' The low rate of 15·1 per thousand at the age of eight years is due to the fact that the children are only just beginning to work. A year later, three times the number of cases occur.

Almost every case of flat-foot which came under my notice was accompanied by a relaxed state of ligaments of the knee- and elbow-joints, shown by a strong disposition to knock-knee, and a singular facility of the child to bend the forearm backwards on the arm. Apart from flat-foot, a disposition to knock-knee was very common among the factory children, while the opposite state of bow-leg prevailed among the agricultural. I did not observe a single case of bow-leg among many thousand children in the schools in the manufacturing districts.

Flat-foot is not dependent on any recognised constitutional disease. In the districts in which it is most common, scrofula and constitutional syphilis are very rare, and rickets is almost unknown. Flat-foot is the result of

physical exertion disproportionate to the age and development of the child; but though more common in debilitated subjects, it is otherwise quite compatible with a healthy constitution. Long standing and walking, lifting and carrying heavy weights, and, among the Lancashire and Yorkshire children, the custom of wearing heavy clogs with flat inelastic soles, are the most fruitful causes of the deformity. An inordinate development of body is sufficient to produce it. A very fat overgrown boy or girl is almost always flat-footed, even though they may be perfectly healthy, and never subjected to excessive exertion. Many of the children go about their work in the factories bare-footed; but this, *per se*, should not lead to the formation of flat-foot, but, on the contrary, should counteract it, at least in the clog-wearing districts. People who go about bare-footed have an appearance of being flat-footed which is deceptive. When the unfettered foot is put down, the great toe is abducted, and the other toes are spread out as widely as possible. In this way the abductor pollicis becomes largely developed, and, as it crosses the arch of the foot, it obliterates it: thus it would seem that our much-prized arched instep is obtained by the cramping of our feet and the wasting of the muscles.

Taking a wider but less exact view of the subject, the above remarks apply equally to whole races as to individuals. The industrious, weight-carrying, heavy-built Chinese of both sexes are flat-footed; so are the American negroes;* so are the Japanese, though to a slighter extent; so are the peasantry of Southern Italy. On the other hand, the light-built active Malay, the graceful and erect Tamil coolie, the effeminate Cingalese, and the 'subtle-sinewed' American Indian have high arched insteps. In Ceylon and many parts of India, we see living side by side the fat, free-living, heavy-bodied Mahometans, and

* Professor Humphry attributes the flat-foot of the negro to a lower state of organisation of the race. He says: 'It is well known that the foot is less well formed in the negro than in the European. The arch of the instep, the perfect conformation of which is essential to steadiness and ease of gait, is less elevated in the former than the latter. The foot is thereby rendered flatter as well as longer, more nearly resembling the monkey's, between which and the European there is a marked difference in this particular.' *A Treatise on the Human Skeleton*, p. 91.

the spare-built vegetable-feeding Hindu—the one flat-footed, the other not.

The first step in the treatment of flat-foot will be to remove the causes. If it arise from over-work, over-walking, or standing, the patient must be laid up on the sofa, and only carriage- or horse-exercise permitted for a while, and such mechanical appliances used as the degree of deformity necessitates. In the slighter forms, a well-fitting boot, with tolerably firm sole, large low heel, and a steel spring in the sole under the arch to give it constant support, or an elastic pad, may be used. The steel spring is more permanent, and less likely to get disarranged or be neglected by the patient. It is easily constructed by an intelligent shoemaker, and is indeed a common form of boot for ordinary wearers in America. Flat-foot probably always commences in childhood, and it is during that period that treatment can be most effectual. Very heroic treatment has been proposed for the extreme forms of the deformity, but not with satisfactory results—at least, when the subject is an adult and the case an old one; but many, no doubt, are amenable to patient and persevering treatment with well-devised orthopædic instruments.

Flat-foot and its accompanying state of knock-knee being due in so great a measure to physical causes, the dictum that prevention is better than cure applies here more than to any other deformity to which children are subject. Knowing the causes, we ought to protest against their continuance, wherever we find them. Our inquiries into the subject in the manufacturing districts have resulted in an alteration in the Factory Acts, by which a diminution in the hours, and a better adjustment of the labour to the ages of the children, have been effected. But apart from factory work, or work of any kind, there are numerous causes in operation in all classes of society which tend to the development of this disease. We know that the physiological function of the tarsal arch is to break the shock or jar of the body in walking or carrying weights, and we know also that while in action the joints of the foot, as all other joints, are as much dependent for support on the muscles and tendons which surround them as on the liga-

ments which bind them together; and any position or occupation which will exhaust the muscular strength, or take it unawares, will tend to the production of flat-foot and knock-knee.

Standing still is an altogether unnatural position for a child. All young animals, including children, *run* about, and sit or lie down if left to themselves. All standing occupations, standing in classes or in corners for punishment in schools, are injurious. The solemn parades in which children of all sizes and ages, and at paces which are natural to none of them, are made to take exercises in our better-class private schools are injurious. Long half-holiday excursions, walking with adults, and other thoughtless actions in which children are pushed beyond their strength, tend the same way. There is no position so irksome or injurious to a child as standing still. If observed closely, he will be seen to stand first on one leg and then on the other; and when the muscles are quite tired out, and he cannot lean on his neighbour, or on a desk, or against the wall, he plants his feet on the ground a little apart to form a good base of support. The knees come together to support each other, and the ankles are turned inwards; the muscles being tired, or not on the alert, as in running or walking, the strain comes on the ligaments, and crooked legs and flat-foot are the consequences. To this we must add the folly of parents in the better classes of society of cramping their children's feet in small, narrow-soled, high-heeled boots, the whole surface of which is hardly equal to half the area of the natural foot. The high heels especially favour the inversion of the ankle, and should be denounced with uncompromising firmness. Children's boots ought not to be large and heavy, but they should have soles broad enough, and heels low and large enough, for the whole foot to rest upon; and they should have firm laced tops to keep the foot in its position. The part of the sole under the instep should be high and elastic, to allow of the proper motions and development of the foot, and to avoid the evils which we have seen arise from the solid wooden-soled clog of the factory children.

XVII. TWO CASES OF CARCINOMA WITHIN THE ABDOMEN; WITH OBSERVATIONS ON PAIN AS A RESULT OF PRESSURE ON NERVES.

PART OF A CLINICAL LECTURE.

By JOHN W. OGLE, M.D. OXON.

THE following two cases were under my care in the Hospital, but eventually died at their own homes. In both cases opportunity was fortunately given for post-mortem examination, with the particulars of which I was favoured by the private medical attendants of the patients.

CASE I. Eliza G., a married woman, with one child, was admitted into St. George's Hospital April 17th, 1872. She was a bright intelligent woman, but very thin, and having on her face the expression of pain. For twelve months previously she had suffered from occasional pain about the abdomen, with sickness and loss of appetite; and for three months had had great pain in the left thigh, chiefly the posterior part, which she called *sciatica*, and which confined her to bed. This pain was at times felt in the back also. It appeared that for nine months she had been subject to an offensive vaginal discharge; and for this period the catamenia had been absent. Occasionally vomiting existed. On admission the limbs were very emaciated, but especially the left leg; and down this limb intense pain was felt, as far as the knee. Some pain also was complained of in the opposite leg. The left leg was drawn up in bed, and very rigid; and across the thigh was one inch less than the other by measurement. On examination of the abdomen, a hard mass of about the size of an infant's head was found to exist in the abdomen, appearing to extend from the umbilicus to the crest of the ilium on the left side, and dipping into the left iliac fossa, but apparently not extending upward to any great extent under the ribs. Pressure upon this mass caused no pain, and the *patient herself was ignorant of its existence*. The bowels were regular; the urine was acid and free from albumen. The thermometer on the day after admission showed the temperature in the morning to be 98.4° , and in the evening 98.8° . Nourishing food was given, and brandy and $\frac{1}{4}$ gr. of morphia, with, subsequently, sulph. atropine $\frac{1}{80}$ gr. was injected under the skin, with great relief. This was often requisite to procure sleep, as the pain in the limb was so intense. Chloral was also given at night, and occasional aperients. It was found, on vaginal examination, that the os uteri was patulous and indurated, and with com-

mencing ulceration, the uterus being free and movable. It did not appear that the diseased mass within the abdomen was connected with the uterus or ovaries. The patient continued in the Hospital three months, getting thinner and weaker, and on one occasion had bed-sores. For the most part intense pain was experienced in the left thigh and knee, which was drawn up and the knee rigidly flexed, any efforts to extend it causing great suffering. During this time the subcutaneous morphia and belladonna injections were indispensable daily, and gave the greatest temporary relief, and the only things that produced satisfactory sleep. Towards the latter part of her stay in the Hospital the tumour seemed to increase, but this was not accompanied by pain. Appetite and strength also failed; and at her own request she left the Hospital, and fell under the care of Dr. Kingsford of Sunbury-on-Thames, and was treated by him until she sank and died towards the end of September. That gentleman has kindly sent me the following history of her case, as it was under his care, and of the post-mortem examination. He writes as follows: The patient 'died after terrible suffering; the injection of morphia was continued to the end, though latterly it gave ease for a short time only.' The post-mortem examination was made fifteen hours after death. 'Body extremely emaciated. Rigor mortis hardly present at all; the chest and epigastric region still warm. (Qy. Would the absence of rigor mortis be due to the continued injection of atropine and morphia?)

'On opening the abdomen there was an entire absence of any fat, the omentum being completely absorbed. The whole of the left iliac region and part of the hypochondriac was occupied by a large fluctuating tumour, which stretched also a little to the right of the mesian line. This was partially covered by the descending colon, which had been pushed out of its course, and ran diagonally from right to left across the abdomen. Opening the cyst wall, which was about a line in thickness, between one and two pints of a reddish serum escaped; the rest of the cavity was filled with a yellow cheesy-looking substance, probably the contents of the cyst breaking down, and some of which I have sent you. The tumour was attached to the bodies of the three last lumbar vertebræ; and on cutting through its attachment to them they were found to be very carious, a great part of the bone being absorbed. The first sacral and second lumbar vertebræ were apparently healthy. Abdominal organs, including the ovaries, were healthy.

'The entire absence of any symptoms of spinal disease seems to me to be one of the most remarkable features of this interesting case, there being no paralysis of either of the legs.'

A portion of the mass sent up to me for examination was found to consist of soft encephaloïd carcinoma and a mass of lymphatic (? lumbar) glands, partly affected by carcinoma, and surrounding the bifurcation of the iliac vessels. The walls of a large cyst existed in connection with the diseased mass.

In a later note Dr. Kingsford remarked, in answer to

queries, that 'his father was of opinion that the lumbar glands were the starting-point of the disease, and that the vertebræ were only secondarily implicated.'

Comments. This case presents two or three points on which I would dwell. In the first place, I would allude to the pain which before admission the patient had suffered under the name of sciatica. How often is it that pain is thought to be of little or no gravity, and attributed to rheumatism, or is called neuralgia, under the supposition that muscles or peripheral nerves are affected, whereas the *fons et origo mali* is some serious affection of the central nervous system, or of the larger nerve-trunks far remote from the seat of pain! This error is very common in affections of the spinal cord and the brain. I have, for example, seen several cases in which the pain in the limbs so frequent in locomotor ataxy, spinal meningitis, &c., has been considered and treated as resulting from rheumatism; and in one case the patient, a gentleman in the army, was sent from India to Australia, and bidden to travel over the country on horseback, with a view to 'throw off' the pains: and so-called neuralgic pain in the abdomen (see *Path. Soc. Tr.* vi. p. 29), in some cases simulating peritonitis, often attends disease of the spinal cord and nerves. Among other cases which I have related with symptoms like sciatica dependent on other disease, see the case of paraplegia described at p. 34 of the 16th vol. of the *Path. Soc. Tr.*; and also the case of abscess of the rectus femoris muscle at p. 278 of the same volume. See also a case in vol. xiii. p. 226 of cancer of the spine described by Mr. Curgenvin, in which great pain in the knee arose from pressure on the crural nerve. Also a case of aneurysm of the abdominal aorta, described by Mr. H. Thompson (vol. iv. p. 110), producing characteristic pain along the course of the crural nerve. The subject is also illustrated by cases of so-called neuralgia of the cranial nerves, consequent upon cerebral mischief. In some cases a tooth has been extracted for supposed 'toothache,' the pain being in reality the result of central or cerebral irritation. Such an instance was recorded by Mr. France in the *Guy's Hospital Reports for 1846* (p. 51). The case was that of a man who had seven teeth extracted for supposed

tic-douloureux, all of which proved to be sound. The pain had really been produced by the pressure of a malignant growth, which caused paralysis of several cranial nerves. An example of this kind also occurred at St. George's Hospital many years ago, and was brought before the Pathological Society of London (see *Transactions*, vol. iii. p. 40). The patient died with softening of the brain, caused by spontaneous coagulation of blood in the carotid arteries, and symptoms of paralysis commenced with a severe so-called 'toothache,' for which two teeth were extracted. Nerves also of the face have several times been divided for a neuralgia consequent on brain-disease. The subject is also illustrated by cases in which intense pain in the sciatic and obturator nerves is often produced by pressure of an aneurysm in the abdomen, or of fæces in a loaded bowel, or of a pregnant uterus. Such pain may last long after the cause has been removed. Thus I have notes of a patient with numbness down the right leg, with now and then a degree of throbbing, which had continued ever since she was pregnant with her first child, twenty-four years previously. In the case which I have above related, the pain in the limb was no doubt the result of pressure within the pelvis on the nerves which pass to the limb; and this pressure would in great part cause the rigid condition of the muscles of the leg which existed, though in some measure and manner it might be due to the voluntary efforts to avoid pain by keeping the leg flexed on the belly. We all know what acute pain along the nerves of a limb is apt to attend the use of a tourniquet. It is a clinical point of interest, and one frequently met with, that the patient (in the case just related) came into the Hospital without knowing that she was the subject of any tumour. This ignorance on the part of patients as to the presence, very often quite perceptible when looked for, of enlargements or deviations as to sensibility of organs, especially those of the abdomen, you will not uncommonly meet with in our wards, due no doubt, in part, to a diminished attention to their own sensations, engendered by the necessities of 'hard work' and 'want of time' to attend to themselves. I have quite recently

seen the case of a gentleman* who has a large and hard tumour within the abdomen, probably cancer of the kidney, which had never attracted his attention. Two years ago I saw a patient with a large abdominal tumour, of the existence of which she was quite ignorant. This corresponds with the observation of Dr. Bright, in his work on *Abdominal Tumours* (see p. 226 of the Sydenham Society's edition), who, when speaking of the case of a woman who was unaware that she had a large tumour in the abdomen, remarked on the slight dependence to be placed upon the observations of patients as to facts to which their minds have not been particularly directed. He observes: 'We should hardly have thought it credible that a well-informed woman, whose thoughts had necessarily been turned to the state of her health for the last year or eighteen months, and had suffered pain in her abdomen more particularly, should have been ignorant of a tumour as large as the head of a child in that very part.' You will see in our Museum (series ix. no. 221) a preparation showing carcinoma of the stomach, which during life formed a tumour of the size of a large orange, of which the patient was quite unaware, according to the history given by Dr. Seymour, who attended him.

As regards treatment in the above case which I have described, of course nothing could be done but to relieve pain and support the strength. The former indication was well met by the hypodermic method of using sedatives.

Thinking of cases analogous to the above, I can recall to mind especially that of a gentleman who was invalided from India with supposed neuralgia in the leg, which I found to arise from a carcinomatous mass in the lower part of the abdominal cavity which had not been noticed. It also receives illustration from a case which I will quote, viz. one recorded by Dr. A. Cantwell of Montpellier in the fortieth volume of the *Transactions of the Philosophical Society* (anno 1737). It was that of a gentleman who had lost the use of his left leg and thigh, and was very subject to pains in his bones, especially his legs, which had been treated by mercury

* With Dr. Lipscombe of St. Albans.

and hot baths, as if they were syphilitic. Great difficulty in passing the urine and fæces came on, and treatment by strong aperients and enemata, &c. was unavailing. Eventually it was discovered that there was 'a solid body near the rectum, which, obstructing the passage, hindered the clyster-pipe from entering far enough into the gut.' Symptoms which were evidently those of peritonitis set in, from which he died. After death rupture of the colon was found, and the entire left side of the pelvis was ascertained to be full of an 'excrecence of a prodigious size,' and weighing 2½lbs., pressing greatly on the urinary bladder and the rectum, and appearing to take its rise from the holes in the left side of the sacrum, which itself was very greatly softened. The tumour was 'analogous to the liver in substance, colour, and consistence,' and was, no doubt, carcinomatous in character.

Amongst other cases in which pain along the nerves was occasioned by pressure of growths within the abdomen or pelvis, I may quote a case mentioned by Frerichs at p. 358 of the second volume of his work on *Diseases of the Liver* (Syd. ed.). The patient was a man aged sixty-seven, who had cancer of the rectum, of the liver, and the lumbar, hypogastric, and inguinal glands, and suffered much from pain in both lower limbs, 'especially the left, along the course of the ischiatic nerve,' and subsequently 'violent pains in the calf of the right leg.' Again you will find the subject illustrated by a remarkable case of obscure abdominal tumour recorded by Mr. W. C. Dendy, at p. 70 of the first volume of the new series of the *Transactions of the Medical Society* (1846). The tumour was situated in the locality of the sigmoid flexure of the colon, and was of enormous size. Its nature was never clearly made out, but amongst the phenomena which it occasioned were paroxysms of intense pain, at first 'in the track of the lumbar plexus, called neuralgia.' The cutaneous nerves became 'morbidly sensitive,' and later on the 'neuralgia was referred to the sacral plexus, and especially to the sciatic nerve, the pain in which is excruciating, unless firm pressure be made on the notch.*' An interesting pre-

* In passing, I will refer you to the case which was admitted into this

paration exists in the Oxford Pathological Museum (No. 594) of aneurysm of the abdominal aorta, of which for a length of time there was no sign during life except intense spasmodic pain, chiefly on the left of the abdomen, aggravated by the recumbent position. It was thought that there was suppuration in the psoas muscle, producing pressure on the nerves. There was intense pain and anæsthesia *along the course of the crural nerve*. Subsequently pulsation under the left ribs made its appearance, and atrophy of the left foot. After death, in addition to the aneurysm, suppuration of the psoas and caries of the lumbar vertebræ were found. The production of pain and also of loss of power in one leg by reason of pressure of a tumour within the abdomen is exemplified by a case brought before the Pathological Society by Dr. Dickinson (vol. xxi. p. 397). It was a case of encephaloid disease of the lumbar glands simulating a renal tumour, the mass lying in close apposition to the intervertebral foramina.

The following is the second instance of carcinoma within the abdomen which I propose to bring before your notice. The diagnosis was, as you will find, less clear than in the cases No. I.

CASE II. The patient, Sarah C., æt. 47, a stout and healthy-looking cook, had been ill for three or four months with symptoms of indigestion, commencing with want of appetite, flatulence, and uneasiness after eating. Vomiting had come on; and when I saw her in consultation with Mr. Tweed of Upper Brook-street, she was suffering from almost constant dull aching pain in the upper part of the abdomen, chiefly in the direction of the right hypochondrium, and the food was almost always vomited. There had been no acute pain as of the passage of gallstones, and no history of lead-poisoning (a condition, however, to which the vocation of the patient might have rendered her liable), &c.; and there was little or no pressure at any particular spot, and no swelling or enlargement could be detected in any part of the abdomen, which was somewhat tympanitic. The tongue was clean, the pulse regular, the urine free from albumen and of natural appearance. At no time had there been any vomiting of blood or any tendency to jaundice, but constipation of the bowels had been very troublesome. The catamenia had ceased several months. I was strongly of suspicion that some carcinomatous growths

Hospital of a patient, æt. 55, who had severe sciatica of the right side of six years' standing, which originally came on quite suddenly. When admitted, she had had uterine disturbance for six months, and there was great enlargement of the inguinal glands. There was a strong suspicion of cancer as being the cause of the pain.

existed deep down in the abdomen, pressing on nerves. Remedies of all kinds had been ineffectually tried by Mr. Tweed, and nothing that I could suggest was attended by better results. Subsequently she was admitted into St. George's Hospital, and accidentally fell under my care. The pain, which was never periodic in character, was then more diffused over the abdomen, and attended by great prostration, and the vomiting more constant; otherwise she was in much the same state as above described, often with intervals of comfort and freedom from pain. She was treated by sedatives, gentle alkaline aperients, and warm baths, but only temporary relief followed. At no time could any tumour or enlargement of any kind be detected, and on several occasions the patient's appearance and symptoms led to the suggestion that hysteria was an element in her case. Eventually she was discharged at her own request, and became a patient of Dr. Parsons of Beckington, near Bath; and shortly afterwards that gentleman kindly wrote to me and described her condition as follows. He observed: 'Her chief symptoms are depression of mind, want of appetite, green vomit, obstinate costiveness, and paroxysms of acute abdominal pain at a spot rather above and to the right of the navel, latterly shifting to the region of the right kidney.' I suggested by correspondence the use of arsenic and also of subcutaneous injections of morphia and belladonna; but it appeared that these measures only caused temporary though decided relief, the injections having to be used thrice a day. I learnt from Dr. Parsons that the patient got worse during a space of four months, and then died; and that ten weeks before death she complained of violent catching pain in the left side of the back, and pleuritic friction was heard; there was also slight cough and persistent blood-streaked sputum. 'A few days later the left side of the chest behind became dull, and this dullness extended as high as the spine of the scapula, but not in front, and did not change its limits when the patient altered her position. The respiratory sound in the dull portion of lung was almost absent, but there were no bronchial râles, bronchial breathing, nor bronchophony; the respiration was but little quickened, and the temperature when examined was always 97° F. Cancer of the lung was diagnosed. These pulmonic symptoms continued with but little change till death. When they came on, the abdominal pain subsided, and though it came on afterwards it was less confined to one spot; the patient could not localise it, but said that she was in pain all over. All pain ceased two days before her death. She never vomited any red blood, but the green vomit recurred at intervals, but was never profuse in quantity. No abdominal tumour was ever detected, nor any enlargement of the liver. The tympanic resonance of the stomach extended over a wide area. Cancerous cachexia was not very marked.

Post-mortem examination. The body was much emaciated. The stomach and duodenum greatly distended; the rest of the intestine empty and contracted. The stomach contained a large amount of gas and of a greenish grumous fluid; its posterior wall was cemented to an elongated irregular scirrhus tumour occupying the site of the pancreas, involving the coeliac artery and plexus (accounting, no doubt, for the terrible pain), compressing, but not quite obstructing, the intestine at the junction of the duodenum and jejunum, and surrounding the inferior vena

cava so closely that it was remarkable that there was not more cedema of the lower limbs. There was a little puffiness of the ankles when first I saw her, but this subsided when she took to her bed. The tumour, though bigger than the fist, was so concealed by the distended stomach that it could not be felt when the abdominal walls were removed. The muscular coat of the stomach was involved, but not the mucous coat. There were several round scirrhus masses in the convex surface of the liver, but none extended below the ribs; there were also nodules of cancer on most of the abdominal organs. The lungs were healthy, with the exception of some nodules in the anterior edge of the middle lobe of the right lung, and of the lower lobe of the left lung, the surface of which was widely infiltrated with cancer, and adherent to the parietes in places.

'Sections of some of the tumours showed a network of fibres mingled with abundant large, irregular, many nucleated cells.'

Comments. In the above case we have a good illustration of the insidious manner in which abdominal cancer often advances. The intense pain about the epigastrium and hypochondriac region in the early stage naturally might have been a form of coeliac and mesenteric hyperæsthesia or neuralgia, but the constant and distressing vomiting pointed to something more than a mere neurosis, and it seemed from the first most probable that the posterior wall of the stomach was affected, though of course irritation of the vagus nerve might have accounted for this symptom without any implication of the stomach's walls. After death the suspicions which had been entertained in the early part of the patient's illness were shown to have been justified by the symptoms, and were explained by the discovery of the mass of cancerous structure about the pancreas, involving the nervous plexus in the neighbourhood, thus causing the intense pain; and pressing on the bowel, giving rise to the constipation; and affecting the parietes of the stomach, thus inducing the vomiting. The indications of pleurisy and other physical signs connected with the lung, as observed during life, were explained by the supervention of the carcinoma in the chest. The absence of any marked cachectic appearances in the patient would perhaps correspond with the fact that the carcinomatous growths were of the harder variety, and not the encephaloid or medullary form, or in a state of 'softening,' &c., a condition which, as you know, is more favourable to

the deterioration of the blood by secondary processes. On the whole, this case is very interesting, as showing a strict coincidence of symptoms, if I may so speak, with pathological changes found, if we except the absence of such results as might have been expected (so well pointed out by Dr. Parsons) from the pressure on the inferior vena cava. It is interesting to note in this case that the temperature when taken was always below the ordinary standard. This tendency to diminished heat of the body has before been noticed by myself, as it has been by others.

XVIII. NOTES ON IODATE OF CALCIUM, CAMPHORATED PHENOL, AND SALICYLIC ACID AS DISINFECTANTS AND ANTISEPTICS.

By S. W. MOORE.

THE above compounds are of recent introduction, and are consequently but little known and used; it is important to accumulate facts concerning any new bodies, that their true nature may be accurately determined. My attention was drawn to the first of these substances, iodate of calcium, in a paper in the *Chemical News* (vol. xxviii. no. 773) by E. Sonstadt, in which he details how wonderfully it acted in preventing and arresting decomposition in wine, meat, eggs, and other readily putrescible substances; he also believes that it may be utilised as a drug in the arrest of septic matter (germs?) and conditions, as cholera, typhus, typhoid, and scarlet fevers. He was unable as a layman to put to the test his theories; I therefore gave this substance a trial, having first tested its powers on inert organic matter.

Reichardt (*Arch. Pharm.* [3], v. 109, 110) gives the following methods of preparation: If iodine is added to a solution of calcium or sodium hypochlorite, iodic acid is at once formed. So also if potassium iodide is substituted for free iodine in the above reaction, calcium iodate begins to crystallise out, and by evaporation a considerable quantity of this salt may be obtained. If precipitates containing iodine are boiled with excess of soda, the liquid filtered, calcium hypochlorite added to the filtrate, and then hydrochloric acid, a precipitate of calcium iodate at once forms. From the potassium salt thus obtained free iodic acid may be prepared by decomposing the crystals by means of sulphuric acid.

The salt used in my preliminary experiments I obtained by neutralising the iodic acid with carbonate of lime and evaporating to dryness. The salt behaves chemically as is usual with iodates; it contains six atoms of water of crystallisation, its formula being $\text{Ca } 2 \text{ I O}_3, 6 \text{ H}_2\text{O}$, and gives off oxygen and iodine when heated. In my later researches, to save trouble, the salt has been obtained from Messrs. Hopkin and Williams, Cross-street, Hatton-garden.

Experiment 1. Definite quantities of urine were taken (10 c.c.) and exposed to a limited portion of air in test-tubes, varying weights of calcium iodate were added, ranging from 0.01 grm. to 0.2 grm., and the change noted daily; a similar quantity of the same sample of urine was left without addition to compare with the prepared ones.

On the fifth day those portions of urine treated with the iodate were nearly odourless, except for a faint urinous smell, while the sample of original urine was mouldy and slightly ammoniacal.

On the eighth day the samples with the larger quantities of iodate were of a deep-brown colour, and smelt strongly of free iodine; those with the lesser proportions were unchanged; while the original urine was very mouldy and somewhat more odorous.

On the tenth day all the samples contained free iodine, but were otherwise free from unpleasant odour; while the sample of original urine was very offensive.

Experiment 2. To 50 c.c. of fresh milk in an open dish 0.2 grm. of calcium iodate was added, and a similar quantity of the same sample of milk was also set aside untouched.

On the third day the pure milk had become solid, but no change had taken place in the sample treated with the iodate, save the separation of the cream with a slightly sour odour.

On the sixth day the original milk was covered with blue mould, and had a foetid disgusting odour; the iodate sample was a little mouldy, but had not curdled—it was, however, slightly offensive.

On the eighth day the iodate sample was curdled and offensive.

Experiment 3. Two samples, of 50 c.c. each, of fresh urine were exposed to the air in open vessels; one was treated with the iodate, the other left untouched. Both samples remained unaltered on the third day; on the sixth day the treated sample assumed a darker colour, but the original urine was the same in appearance and odour as when passed; on the eighth day, finding that the original urine was unchanged, except for a very little blue mould, I made inquiries respecting the patient from whom it was obtained, and found that he was taking *syrupus ferri iodidi*. On applying suitable tests iodine was demonstrated in the urine, which seems to account for its stability.

Experiment 4. A rotten egg was divided, and a portion treated with calcium iodate, by simply sprinkling over its surface 0.2 grm. of the powdered salt.

— On the third day the egg had lost the bad odour which it possessed

when broken; on the sixth day it still remained inodorous, and at the edges was drying.

On the eighth day it was dry, horny, and inodorous, and has remained in that condition since.

Experiment 5. Some foetid decomposing albuminous fluid drawn from a hydatid cyst some months previously was treated with the salt; at the end of ten days it was nearly deodorised; it would have been a difficult matter to have recognised it as a portion of the fluid from which it was taken.

These results point to the conclusion that iodate of calcium is certainly opposed to the development of chemical decomposition in organic fluids; but how does it prevent these changes? Either by virtue of its own inherent power or by the development of free iodine by decomposition, as seen in the samples of urine. We know that the haloid elements are all more or less disinfectants; but iodine from its high price, and bromine from its corrosive properties, have not received so much attention in this direction as has chlorine.

The iodine in the natural urine of Experiment 3 seems to have greatly influenced its stability; may not the beneficial influence of iodide of potassium in syphilis be due to the antagonism of iodine and septic matter?

It now became necessary to test the influence of this body, the iodate of calcium, on the living organism; I therefore gave it in suitable cases to my patients at the London Temperance Hospital, Gower-street.

CASE I. S. C., a case of indolent ulcer of the breast around the nipple, with a purulent discharge of bad odour. A powder consisting of half a dram of iodate of calcium to one ounce of starch-powder was ordered to be dusted on the affected part.

Under this treatment the discharge became inodorous, and the wound assumed a healthy appearance; but the shooting pains in the breast were so severe that the application had to be discontinued.

CASE II. J. R., æt. 49, a labourer, admitted with large rodent specific ulcers, occupying nearly the whole space between ankle and knee on the tibial surface of his left leg. They were recurrent, and had existed for four months on this occasion. Iodide of potassium was ordered internally, and charcoal poultices to correct the fætor of the ulcers.

On the eighth day after admission he gave evidence of an attack of erysipelas. He was put on milk diet, with large doses of perchloride of

iron. His pulse was 140; temperature, 104.2° ; both pulse and temperature remained at this high standard, and the temperature once rose to 105.2° . His leg became oedematous, the integument round the ulcers assumed a sloughy appearance; his tongue was brown, dry, and cracked; the blush was spreading upwards to the trunk; and with his pulse at 120 and his temperature at 103° F. I administered, on the sixteenth day from his admission, two grains of iodate of calcium to be taken twice daily.

On the day following he declared himself almost free from pain; his appetite was improved, his pulse had sunk to 116, and his temperature to 101.8° . The administration of the drug was continued as directed; the general improvement in condition progressed; and the pulse and temperature continued steadily to decrease until the twenty-fifth day after admission, when they became normal.

CASE III. H. H., *æt.* 19, admitted with chronic abscess of the back, with copious purulent discharge, and some pain. On the twenty-fifth day after admission one grain of the iodate of calcium was ordered thrice daily; a marked improvement followed; the discharge lessened in quantity, and became sanious rather than purulent.

CASE IV. C. T., *æt.* 46, admitted with a large indolent ulcer on back of right calf of seven years' standing. The muscles were exposed, and their action could be plainly seen on moving the foot.

A fly blister was applied to the ulcer, and subsequently charcoal poultices. It was, however, determined to try the iodate as an application with the poultices instead of charcoal; the fester was overcome to a considerable extent, but not so completely as with charcoal; but it gave rise, as in a previous case, to considerable pain, and had therefore to be discontinued. It was ordered internally after this in two-grain doses three times a day. A marked improvement followed the administration; the discharge lessened in quantity and lost its offensive odour, the granulation assumed a healthy appearance, and the ulcer gradually but surely healed.

CASE V. E. L., *æt.* 52, labourer, admitted suffering from disease of the tarsal bones. It was intended to remove the anterior part of the foot by Chopart's operation; but on the day previous to that fixed for the operation to take place erysipelas was developed in the limb. This malady progressed so rapidly, and so affected the patient, that his life was despaired of; his pulse rose to 140 and his temperature to 104.8° ; the limb was swollen to twice its natural size, was oedematous, and the skin inclined to slough at certain parts; his inguinal glands were affected, and the course of the lymphatics inflamed. He became delirious, and remained unconscious for five days.

In the midst of this condition I ordered him four grains of the iodate three times daily. He immediately improved, became conscious, said the medicine revived him, his pulse and temperature sank, the oedema subsided, appetite improved, and a general indication of returning vigour presented itself.

So marvellous was the change effected by this drug, that it has certainly never been equalled in my experience by any other medicament.

We gather, then, from these cases, though they be few, that the iodate of calcium, though an efficient local application, produces too much pain for the comfort of the patient; but that in cases in which it has been administered internally it has invariably improved the tone of the system to such a degree that the pulse and temperature have uniformly fallen to the normal standard. Some experiments were commenced to ascertain the bearing this drug had on the elimination of waste products in the urine; but from inaccuracies in collecting this fluid, owing to the unconscious state of the patient, they had to be abandoned. This matter is, however, in hand, and good results are hoped for. It must be remembered that in all these cases alcohol has been dispensed with in the treatment, and that the drug tested has been given in its pure and simple form.

It would be most desirable for further evidence to be collected concerning this drug; I have no data to give on its use in medical cases, but I have brought it to the notice of my colleagues, who will doubtless put it to the test in fever and other suitable affections.

Camphorated phenol. In the *Campania Medica*, Nov. 8th, 1873, Bufalini refers to this body as a new compound which he had discovered, and gives the methods of preparation and reactions.

The substance in question, he says, consists of camphor and carbolic acid, the which, when mixed, produce an oily fluid which floats on the surface of the mixture; it does not mix with, nor is the camphor precipitated by, water; it is soluble in alcohol and ether.

These facts are said to indicate a new chemical compound.

To test the accuracy of the above statements I carefully investigated the matter, with the following result.

Various proportions of camphor were added to a definite quantity of carbolic-acid crystals.

In all cases the two substances rapidly became liquid, and the camphor invariably dissolved, if not in greater proportion than two parts to one of phenol; this, then, be-

came the standard, one part of phenol always dissolving two parts of camphor.

The specific gravity of this mixture at 60° F. was 998, and its boiling point 375° F.; distilled fractionally the greater part of the phenol came over, leaving the larger proportion of camphor behind. The mixture had a double odour of camphor and phenol, and responded to the tests for both substances; it was soluble in alcohol.

Not any of these facts warrant the assumption that this is a chemical compound.

A chemical compound usually changes its constituents, so that they are no longer recognisable as in the free state; in this case both camphor and phenol are recognisable. Chemical union produces heat; when these two dissolve heat is abstracted, as one would expect. When added to water, camphor is not precipitated, because the phenol is not soluble to any great extent in water, and has a greater affinity for the camphor; camphor is precipitated from its solution in alcohol, because this fluid is soluble to any extent in water, and thus leaves the camphor unprovided for.

In no instance have I been able to get the oily fluid by mixing the alcoholic solutions of camphor and phenol.

The therapeutical advantages claimed for this mixture are that 'it produces the same effects as carbolic acid without its dangerous properties.' This to a great extent is true; for when applied to the skin it produces no caustic effects; it does not irritate or cause to smart wounds or sore places; it may be applied to chapped hands with advantage, and internally larger doses may be given than of the phenol alone. It must be remembered that the camphor present is the modifying agent, and that large internal doses of this drug are dangerous. As a deodoriser it is not so powerful as carbolic acid, and probably as a disinfectant it is less potent. Some few experiments were made with it in dressing wounds, but it did not exceed the usual carbolic dressing in effects, and is more costly.

Salicylic acid has been well known to chemists for some time as a therapeutical agent; it was introduced by Kolbe, who has for years been working on the subject (see Ding-

ler's *Polytechnisches Journal*, 2d July). It is readily obtained from oil of winter green by boiling with caustic potash; it may also be produced directly from salicin and caustic potash by fusion; it may also, by Kolbe's method, be obtained from carbolic acid by adding carbonic anhydride at the moment that it is dissolving sodium. The acid, when heated to decomposition or distilled with lime, yields carbolic acid.

From a knowledge of the fact that it could be produced from phenol, and again converted to it, Kolbe conceived the idea that it would prove a valuable disinfectant and antiseptic. He found that it entirely arrested the action of ferments and also prevented their development, and that its action on organic matter and fluids was of a preservative nature, and Professor Thiersch made some experiments in this direction. In arresting the discharges from diseased surfaces and in inflammatory processes it is said to be most useful. I have repeated some of these experiments with the following results:

Experiment 1. Samples of 10 c.c. each of urine were treated with varying quantities of salicylic acid, one portion being reserved for comparison.

On the fifth day those samples containing the salicylic acid were free from odour, while the original urine was mouldy and odorous.

On the eighth day they were still inodorous, the original sample being foetid.

Experiment 2. Two portions of milk of 50 c.c. each were taken, and one treated with 0.2 gm. of salicylic acid.

On the third day the pure milk was solid, and had a sour nasty smell, while the prepared portion was sweet and had no smell.

On the sixth day the original milk was foetid and mouldy, while the other sample was only slightly mouldy, not curdled, and had only a faint sour smell.

On the eighth day it was curdled and very mouldy.

Experiment 3. A portion of a rotten egg was treated with some powdered salicylic acid, by simply spreading it over the surface; on the third day the egg had lost all bad odour; on the sixth day it was still odourless; on the eighth day it was beginning to dry up and assume a horny appearance.

Experiment 4. Some decomposing fluid from a hydatid cyst was similarly treated, and at the end of ten days it was considerably less offensive than the original fluid, but it had not lost all odour.

Its efficacy as a surgical application was now tested in the following cases:

CASE I. A saturated solution (10 grains to the pint) of salicylic acid was applied as a warm-water dressing to an erysipelatous limb, in which the discharge was very foetid; it had no effect, and was discontinued in favour of charcoal. It was determined, however, to give it a fair trial, and a solution made according to Thiersch's direction—one part salicylic acid, three parts phosphate of soda, and fifty parts water—was directed to be used as a warm-water dressing; it did not control the horrible odour of the discharge, and again had to give place to charcoal poultices.

CASE II. An excision of elbow-joint was dressed with salicylic-acid lotion; the discharge was very copious, and at one time a slight blush appeared on the arm, with mild febrile symptoms; these passed off, and the lotion was discontinued for carbolic-oil dressing, under which the arm did well.

CASE III. Several ulcers on leg, with inflammation along the course of lymphatics, were treated with the above soda-salicylate solution; the parts were clean and healthy after the application, but the case is still under treatment, so that a decision as to its effects cannot be given yet.

Dr. Boyland, writing to the *Lancet*, November 28th, 1874, is rather led away on the potency of this acid. He says: 'Inodorous itself, it utterly destroys and eradicates all odours or stench, of whatever nature they may be.' My experiments do not fully bear this out. He also speaks of two portions of urine, one having been treated with carbolic, the other with salicylic acid. After two weeks had elapsed, the one treated with salicylic acid was 'sans odour,' the other 'emitting an offensive smell of carbolic acid.' Carbolic acid is not offensive to all persons. Dr. Boyland also mentions cases of amputation as having healed by first intention when dressed with this acid. There is no reason why they should not have done so in any other case. It was also applied to carcinoma with great success, inasmuch as it caused the secretions to stop within forty-eight hours. This is not in accord with my results; but of course further experiments need to be made in every direction before a definite place can be assigned to this body. I have not administered it at all internally, and cannot therefore speak of its action.

Dr. Boyland, in the above communication, says that this acid, when heated to 70° Cent., is resolved into carbolic acid. This is evidently a misstatement, because the pure acid may be sublimed at 300° Cent. without decom-

position. When distilled with lime, it is then changed to carbolic acid.

We may summarise thus: that salicylic acid does prevent fermentative action and decomposition in organic fluids, but that it is doubtful at the present stage of inquiry whether it is powerful to combat the effects of diseased action in the living body.

This subject is quite in embryo; but I give early my experience, in the hope that others may be induced to try the effects of these substances wherever they may have an opportunity.

	Original substance.	With salicylic acid.	With iodate of calcium.
10 c.c. urine . .	. . .	0·01 grm. to 0·2 grm.	0·01 grm. to 0·2 grm.
On 5th day .	Mouldy odours.	No odour.	Slight urinous odour.
„ 8th „ .	Fœtid.	„ „	Strong smell of iodine.
50 c.c. milk . . .		0·2 grm.	0·2 grm.
On 3d day .	Curdled, sour.	Sweet.	Slightly sour, not curdled.
„ 6th „ .	Fœtid, mouldy.	Mouldy, faint sour smell.	Mouldy, slightly offensive odour.
„ 8th „ .	. . .	Curdled and very mouldy.	Curdled and offensive.
Egg		0·2 grm., dry.	0·2 grm., dry.
On 3d day .	Offensive.	Odour disappeared.	Odour disappeared.
„ 6th „ .		Still inodorous.	Still inodorous.
„ 8th „ .	Very offensive.	Becoming horny, inodorous.	Becoming horny, inodorous.
Decomposing hydatid fluid . .		0·1 grm., dry.	0·1 grm., dry.
On 10th day	Horribly offensive.	Improved, not quite inodorous	Almost inodorous

XIX. ON CERTAIN DRUGS—THEIR VALUE.

By ALLAN D. MACKAY, M.B. OXON.

IN these days of scepticism as to the efficacy of drugs, it may appear a somewhat daring venture on my part to write of them; still, an eighteen-years' daily use, and a more or less frequent manipulation of them, make me believe that I may have something to tell of them which may be not altogether unworthy the consideration of the profession. I must first, however, disabuse any reader of this paper of the idea that he will find in it some startling or sensational announcement as to the wonderful effect of this or that drug. Indeed, to him all that I may say may be as trite as trite can be—'There is nothing new under the sun.' All that I shall endeavour herein to show will be the behaviour (watched carefully) of certain drugs in my own hand. I believe this honestly stated, with no preconceived bias one way or the other, will determine that in drugs we possess, for weal or woe, powerful instruments. To me, from my daily intercourse with them, the question seems to be, not whether this or that drug is inert, but when to use this or that drug. Here, *in limine*, let me say, that when I first commenced practice, now eighteen years ago, I, in common, I suppose, with most tyros, had an idea that in grappling with disease I should one day or another have to enlist in my service all the preparations of the *Pharmacopœia*. I need not say that in no long time this idea was entirely dissipated, and the longer I practise the more convinced I am that we can very well, at present, limit the number of our drugs which are really of practical value. I say at present; because every now and then chemistry may bring to the front, as in the case of chloral hydrate, some drug which is of real utility. What, then, will be asked, is my

limit? Well, I do not think in therapeutics that we have much improved on the instruments of our predecessors. True it undoubtedly is that a great deal that was actually worthless and fantastic has been discarded from the *Pharmacopœia*; but it is also true, to my mind, that a good deal more might still be discarded, and our patients be none the worse. In the efficacy of certain drugs—their names, with some few exceptions, have long been known—I have great faith; the difficulty, I think, is to determine accurately when to apply them. I must, however, own to having little or no sympathy with those new combinations of drugs now so frequently advertised, and whose only benefit appears to me to be the benefit they bestow on their introducers. To understand aright the action of a drug it is essential that its action should be observed uncombined with any other; then, having mastered, if possible, this action, it may, for some specific reason, be combined with another. To make my meaning clear, I would prescribe sodæ bicarb. for a certain stomach derangement in which I had again and again found its utility, and then combined with this, to relieve flatulence, nausea, or palpitation, I would prescribe hydrocyanic acid. By this it will appear, I hope, that my cry is not against a judicious combination of individual drugs in the same prescription—of this all must have experienced at times the use and the necessity—but that it is against those combinations of which mention has been made.

With this prelude, then, I will commence my remarks on those drugs whose efficacy in the treatment of disease I think I have proved. I will run through them as nearly as possible in alphabetical order. A few words first, however, as to the curability of disease. Is disease curable? Here comes the pithy question. Unquestionably some diseases are curable, or perhaps I should be speaking more properly were I to say that the effects of some diseases are curable. I do not believe that we can *yet* cure enteric fever, but we can, I think, cure the congestion of the lung which may arise therein; we can, I fancy, cure the ulcerated bowel by judicious treatment. We cannot cure scarlet fever, but we can cure the congested kidney, its sequela.

I do not, then, believe we can *cure* the so-called acute specific diseases; but I do believe that we can by judicious treatment, hygienic, dietetic, and medicinal, relieve the sufferers, make them more comfortable, and so put them in a fairer way for the *vis medicatrix naturæ* to assert her sway, and carry them to a fortunate convalescence. I need not say here, that of course some patients must die, do what you may; the poison is too potent, or their rallying power, when stricken, too faint, or their constitutional vice breaks out, and to this they succumb. But we can cure ague; we can cure syphilis; we can, if our patient will listen to us, cure gout. Organic diseases we can only *alleviate*; functional disease we can *cure*. Acute rheumatism, notwithstanding the mint-water treatment, I believe yields more readily to full doses of alkalies than to any other form of treatment.

Now as to the value, the tried value, of certain articles in the *Pharmacopœia*. Arsenic, in the form of liq. arsenicalis, I frequently prescribe and find efficacious in eczema (chronic), psoriasis, and prurigo. In the acute eczema capitis of children, I can indorse all that Wilson says of its utility in combination with vin. ferri, prefaced by a calomel purge, and the local application of zinc ointment after the removal by appropriate means of the crusts. Carbolic acid needs no praise on my part. It is in such constant use, and its virtues so generally allowed, that it would be impertinent on my part to dwell upon it, especially as I can say nothing (having very little operative surgery) to solve the question of the antiseptic treatment. That it does work wonders, however, we have only to apply it to a sloughing part, and watch its cleansing effect. Gallic acid has seldom or never failed me in hæmoptysis, when a remedy has had any time to take effect, and I seldom prescribe it in larger doses than ten grains every three or four hours. In active hæmatemesis and epistaxis I have also found it useful. In my country—Buckinghamshire and Northamptonshire—I find that the acid treatment of dyspepsia is not, as a rule, nearly so efficacious as the alkaline. Our water is very hard, and contains a great deal of lime. Whether this be the reason or

not, I am unable to say; but the fact remains, that whilst living in Hertfordshire I constantly treated my dyspeptic patients with the mineral acids, I now as constantly treat them with the alkalies—bicarb. of soda, in conjunction with sal volatile, or carb. of ammonia, and dilute hydrocyanic acid, having, in my hands, given immense relief to many a dyspeptic. I have found dilute nitric acid very useful in whooping-cough; I generally combine it with succ. conii. Children take it readily with plenty of syrup. (And here it may not be out of place to advocate the making children's medicines as palatable as possible. This is quite necessary, if we hope to get them to swallow the medicine, and to be met with a smile on our next visit.) Whilst finding an alkali (sodæ bicarbonas) more useful to dyspeptics in my part of the country, I do not wish to deny the acids their just meed of praise. In some cases they are of immense value, whether as aids to digestion or as tonics. As tonics I frequently prescribe the dilute nitric or dilute hydrochloric acid. Frequently, too, have I found a tongue rebellious to soda clean with dilute nitric acid. A most valuable tonic for children I find in the dilute nitric and hydrochloric acids, as suggested years ago by Dr. Arthur Farre. Children like it, too, immensely. Five minims of each of the dilute acids in the syr. of orange and sp. chloroformi, properly diluted with water, children even of tender age will take readily, and ask for more. Acid. sulph. dil., in fifteen or twenty minim doses, is a favourite remedy of mine in summer diarrhoea. May it not act as a disinfectant as well as an astringent to the intestinal canal? I often combine with it three or four minims of tinct. opii.

Glycerine of tannic acid is a useful and elegant preparation, and, to my mind, an improvement on the old-fashioned gargles in sorethroat. Aconitine ointment, or the lin. aconiti, will relieve the superficial tenderness of neuralgic pain. On three occasions I have known the ointment, and on one the liniment, produce copious defluxion from the nose and eye of the side of the face on which it had been applied; the effect was as if the patient had a terrible 'weeping' cold on one-half of his face. In

certain cases of lumbago—I cannot point out the where or the wherefore—I have found tinct. *actæ racemosa* relieve without any other medicament. In other cases it has failed. I think that the cases in which it is useful are those with clean tongue, no constipation, and urine free from deposit of lithates. I believe, with Dr. Sawyer of Birmingham, that tinct. *gelsemini*, in fifteen minim doses every six hours, gives speedy relief in most cases, when there is neuralgic aching of one-half of the face, originating in some stump or decayed tooth. The good effect of *sp. ætheris* (alone or with an anodyne) in relieving the difficulty of breathing in spasmodic asthma, and its allied affection, is too well known to require more than its notice here. A capital aperient for children, and those who object to a large pill, is found in ext. *aloes socot.* For children it can be rubbed down into a powder, and mixed with sugar or treacle; one grain of this extract makes a good mild pill. Carb. of ammonia is, I believe, one of the most useful drugs we have. In languor, in influenza cold, in pneumonia, in chronic bronchitis, in acute bronchitis with *vin. ipecac.*, in syncope, in all these it has been, in my hands, of great service. In pneumonia it seems to give the patient that *vis* he so frequently requires to keep him going whilst the disease runs its natural course. In this affection I generally combine it with liq. ammon. acet. and tinct. *hyoscyami*, or *succ. conii*.

I think the rôle of ammon. carb. is still to be studied in diabetic patients. I have at the present time under treatment, or surveillance, four such sufferers: one, a gentleman of fifty-nine years, has, I think, been benefited by its use; but of late he has thrown 'physic to the dogs,' excepting when he feels '*extra bad*,' and contents himself with following out a tolerably strict diet. In him there is albumen as well as sugar in the water. Another patient, a much younger man, an artisan, who cannot afford the luxury (?) of gluten-bread, but must eat more or less what comes to hand, always declares that he feels better when taking carbonate of ammonia. A third, a lady in very easy circumstances, whom I have known for fifteen years without a day's illness, has expressed herself as

'feeling better for the medicine.' The fourth, a gentleman well known in the hunting-field, told me, within three weeks or a month after commencing the ammonia, that he 'could go out hunting with spirit and zest, whereas a short time before he only went out because, having been so used to the field, he hated to be left at home.' In all these cases, however, I prescribed a strictly diabetic regimen, which has been carried out to the letter in the third and fourth cases. My older patient is a *bon vivant*. He must not, with albuminuria, be too strictly manacled. And here a few words about diabetes in those advanced in life. I think that the opinion is a sound one—I forget from whom it sprung—that the aged will be benefited by the diet being of a less restricted character than that we can allow the young. One more word of diabetic patients before I pass on. Does a patient fare better with Bright's disease if he has also diabetes? I think with my old master, Bence Jones—who looks down upon me from his photo. on the wall, just as he used to look when he would run up-stairs, three steps at a time, to Holland Ward, his clinical clerk following, in the good old times that have gone by—that it is so. Two cases of Bright's disease with diabetes have proved fatal in my own practice with no dropsy, and my present patient has none. So death, at all events, is made more easy and comfortable than in the complicated Bright's disease.

Antimony, in the form of *vin. antim.*, I used at one time to give frequently in the bronchitic attacks of children, but it needs to be closely watched, and suspended the moment the dusky hue of unaerated blood shows itself; indeed, in the ordinary capillary bronchitis of infants I am not sure that we cannot do all we want with *vin. ipecac.*, and do it all the more safely; whilst, if an emetic be required, *ipecacuanha*, I think, is safer than antimony. A sore spot on the tongue, such as one finds in connection with stomach derangement, is immediately relieved, the first smarting over, by a touch of nitrate of silver—the late Dr. Symonds of Clifton says sulphate of copper.

The quantity of sulphate of atropine in the *Pharmacopœia's* solution, I find, irritates some eyes. I think two

grains are enough. Belladonna, both internally and externally, is a valuable remedy. I have given the tinct. in nocturnal incontinence of urine, as suggested by Trousseau, and, when this infirmity depends on a quasi-neuralgic affection (a neurosis), and not on laziness, with benefit. As pointed out by the late Dr. Fuller, it may be given to children in very large doses. I give it also frequently in strumous ophthalmia, in combination with tinct. ferri perchlor. The internal use of belladonna in these cases, so far as I know, was first advocated by Dr. Power in the *Practitioner* of Oct. 1873. It may also be given in whooping-cough, either with sulphate of zinc (Dr. Fuller's favourite mode) or with dilute nitric acid, as previously stated. Belladonna liniment I have known advocated for the relief of neuralgia of the face, but it is, in my opinion, far inferior to the liniment. aconiti or ung. aconitiæ. Whilst speaking of facial neuralgia, I may mention that I find nine cases out of ten to depend, as also toothache, when there is no alveolar abscess, on deranged stomach, and have frequently relieved, eventually cured, the sufferer by a dose of blue-pill in combination with compound colocynth pill at night and bicarb. of soda and sal volatile in the day. Subnitrate of bismuth is very useful in the teething diarrhoea of children, and when the little patient has disturbed nights I give at bedtime Dover's powder. It is rather a difficult matter—at least I have found it so—to determine when to give bismuth in dyspepsia. Of course it is easy enough to say it should be given in pyrosis, and when there seems to be an excess of gastric juice secreted; but these are not the cases of which I here speak. There are certain cases of dyspepsia—you can only, I fancy, guess at them—in which severe pain in the epigastrium is experienced, and in which this pain is speedily relieved by bismuth and dilute hydrocyanic acid. Buchu is, I think, the most reliable remedy for chronic inflammation of the bladder; pareira brava, if it be acute, and especially if the urine be alkaline. In the acute stage I give pareira with henbane; and when the acuter symptoms have subsided, buchu with henbane and dilute nitric acid. In such cases the tinct. ferri perchlor. is sometimes a useful adjunct. Of the Indian hemp I can say

nothing positive, but occasionally have found it ease the pain at the menstrual period. The good effect of charcoal in flatulence to the patient and his surroundings I need only hint at here. Of the value of chloroform, what can I say but what has been already said over and over again? But to those who are not acquainted with it I can strongly recommend the liniment belladonnæ et chloroformi (Squire's formula) for aches and pains. Cinchona and its alkaloid quinine have an established reputation all over the world. Sulphate of quinine with dilute nitric or hydrochloric acid, and henbane and oxymel of squills, I find very useful in chronic bronchial affections. I have lately had a case of ague in which quinine asserted its sway over this malady. The case was a very interesting one. A clergyman, aged 56, who had never had a day's illness in his life, was a little out of sorts, apparently dyspeptic. He went to London for a day when he was far from well, and returned very prostrate and chilly. In a few days he had distinct rigors, followed by a hot stage with perspiration. The thermometer was in this case a valuable aid; I could by it foretell the probable accession of the attack, and so was able to allay anxiety on the part of himself and friends by preparing them for it. Quinine in this case, when it became clear—for at the first the symptoms were somewhat obscure—soon stopped the rigors and hot stage. Colchicum is still, as of yore, a good friend to those who want to get rid speedily of an attack of gout, and is also very useful in the chronic-rheumatic cases with a gouty diathesis with which one so frequently meets. An old friend of mine, a practitioner in British Guiana, a very observant physician, always declared we in England were afraid to use this drug properly; that he never gave less than half-drachm, and oftener larger, doses. Let any one who rows much, and suffers from 'raws,' apply to them flexile collodion; though it will touch him up smartly for a while, he will derive great benefit and comfort from it. Conium and hyoscyamus may be classed together as useful adjuncts in acute and chronic bronchitis. Henbane and citrate of potash are very useful in the feverish dentition of children. I believe myself in the good effects of copaiba in gonorrhœa, if our patient

will only be amenable to rules of diet and living; and creosote, in pills, I have over and over again found useful in flatulent dyspepsia. Digitalis, in the form of the tincture, has in my hands steadied many an intermittent heart, and drained many an anasarcaous leg. It is well in a weak heart to combine it with the tincture of the perchloride of iron. The action of ergot is somewhat disappointing; still, on the whole, it will often stand us in good need. In attendance upon some 500 cases of midwifery I have never had but two cases of flooding which caused me any anxiety. In one case the patient was all but gone. I do not know whether I am more fortunate than others in this respect. I always *after*, sometimes *before*, the birth of the child give a drachm of Curtis's liquid extract, and never give chloroform. Has the modern fashion of giving chloroform in labour anything to do with the flooding cases of which we have heard so much lately? Ergot is often useful with tinct. ferri perchlor. in cases of menorrhagia which do not yield to gallic acid. I have also used it, as suggested by the late Dr. Anstie, in hæmoptysis, but as yet not sufficiently often to speak with authority. I can say nothing of steel that has not yet been said. My favourite preparations are ferrum redactum; ferri et am. cit. with sal volatile and calumba or quassia, and, if the urine be turbid, with a little bicarb. of soda; ferri et quiniæ cit.; tinct. f. perchlor.; and the sy. f. iodidi; and for children, *facile princeps*, the old vin. ferri. The oil of male-fern is the anthelmintic for tænia. As is well known, it should be given fasting, and its administration should be followed, after some hours, by a purge. Those who treat many cases of skin affections need not be reminded how useful is glycerine in their treatment. If you can only catch a quinsy before the actual formation of pus, I believe you can cure it with guaiacum and bicarb. of potash, as suggested by Dr. Atkinson in the *Practitioner* of Feb. 1870. I have more than once found this; and a short time ago, after having been exposed to a very cold wind during the day, I woke up in the middle of the night with most painful sorethroat, the slightest attempt at swallowing the saliva being attended with great difficulty and pain, the pain radiating all over

the neck, and into the ear. Now, with any ordinary trouble, I should think twice before I left a comfortable bed to take physic; still the matter presented itself to me thus: Here I am with all the symptoms of severe quinsy presenting themselves; a nice thing if they should proceed to the formation of pus, and lay me up from work for a week or more. So out of bed I hopped, and took twenty grains of bicarb. of potash, ten grains of guaiacum powder rubbed up with a little mucilage, and some spt. chloroform, in water with citric acid in effervescence, and enveloped my head in a lady's cloud. Now I am really not joking; in fifteen minutes I was decidedly easier, so that I could go to sleep, and swallow my saliva with less difficulty and pain. When I awoke in the morning a second dose completed my cure.

And now about much-abused mercury. Surely no one who has with unbiassed mind noted its workings can say he can dispense with it. Undoubtedly the use of mercury as of yore is unnecessary; but it is a drug of high value. I pass by here its use in syphilis. This has been proved and stated over and over again by far abler pens than mine. I would here only allude to it as a so-called alterative. Let me explain my meaning: a patient comes to you complaining of brow-aching; his eye-balls sore and tender to the touch; pains all over him. Give him two or three grains of blue-pill with colocynth; see him the day after its action; mark the change. A patient of mine tells me nothing does him so much good as a dose of blue-pill. For infants and very young children I believe calomel to be the best purgative we have. It is small in compass, and they will readily take it. See the success of 'Stedman's Powders;' and here the dose is uncertain, whereas we can prescribe it to a nicety. Old practitioners held that mercury (the system brought under its influence) broke down adhesions. Does it, or does it not? I know this: some while back a little boy was brought to me with traumatic iritis of a fortnight's standing. There was a complete curtain of lymph across the pupil. It was uncertain what his father (a labourer) would do for him for another two weeks. At the end of that time (a month from the

accident) he was placed under my charge in our little cottage hospital. He was put upon half a grain of calomel night and morning. In the course of a few weeks the curtain of lymph was almost gone, a thin fringe remaining. When he came into the hospital he could not see at all with the affected eye; when he went out sight (though not perfect) was *very much* improved. I do not think, with the older physicians, that mercury need be given either in pneumonia, pleurisy, or peritonitis. It seems, perhaps, illogical to believe in its influencing the absorption of lymph in traumatic iritis, and not in other diseases where exudation of lymph takes place. But my belief in a constitutional vice underlying diseases, such as pneumonia, pleurisy, and peritonitis, must be my answer if accused of an illogical argument. Notwithstanding the experiments on animals with mercury, I cannot but imagine it does good in cases of jaundice. At least, treat two cases as nearly similar as possible, one with calomel, the other without; see in which bile appears most readily in the stools. That mercury does stimulate some glands is proved by its action on the salivary glands. Then why may it not stimulate the liver? But this is not so much to the point, as that its action in functional biliary derangement is attended by great relief to the sufferer. In podophyllum, at one time supposed to be knocking mercury out of time, I have no faith. It is useful, however, as an aperient, in obstinate costiveness. Pityriasis capitis may be cured, as suggested by Wilson, by ung. hydr. ox. rubri, properly diluted. Hydrargyrum cum cretâ (that bugbear of children in a former age; O, how one can remember the layer of jam, then powder, then jam!) I never use. Calomel, one or two grains, is much more speedy, effectual, and pleasant, in my humble opinion. The lin. iodi of the *Pharmacopœia* is too strong for most skins; it needs dilution. Iodine vaporised is a most excellent, though somewhat expensive, disinfectant. Without carb. of magnesia no one can pretend to treat children's diseases, and as an aperient in hæmorrhoids sulphate of magnesia holds, in my opinion, high rank. This latter drug is also very useful in hæmoptysis and epistaxis.

The value of opium and its various preparations is too well known to require any comment. I may simply say here that opium is vastly superior to any other drug for the relief of pain. Chloral hydrate, most useful as an hypnotic, has proved in my hands quite inefficacious as an anodyne. Strychnia, or tinct. nucis vomicæ, is useful with an acid in atonic dyspepsia. Of pepsine I am no great lover. I have seldom seen *real permanent* good from its use, and I hold that it is far less effectual than the nitrohydrochloric acid; it may, however, be useful in cases which do not (and they do occur) tolerate well the acids. A very interesting paper on traumatic tetanus in the *Practitioner* (Nov. 1874), by Dr. Ringer, marks out the rôle of the Calabon bean, if further experience corroborate its action in such cases. I need not dwell on the virtues of lead as an external application in erysipelatous and other inflammations. I have found bromide of potassium as useful in my hands as in those of others in epileptic cases. The fits are postponed for weeks or months by doses of twenty to thirty grains three times a day. I have never found any ill effects from this drug. I have tried it with bromide of ammonium in whooping-cough, but have found nothing certain from its use. The bromide of potassium is also useful in the sleeplessness of nervous patients, but is not to be compared for this purpose with chloral hydrate, which I believe to be the most valuable sleep-producer that we possess. I have elsewhere (*Brit. Med. Journal*, vol. ii. 1873) written of its use in puerperal eclampsia. I have already spoken of the alkalies, and shall here only say, if we want an alkali to act on the liver and stomach, we should give sodæ bicarb.; if on the kidney, potassæ bicarb. Chlorate of potash is useful in ulcerated sorethroats and diphtheria, but I must own to giving in such cases the tinct. f. perchlor. with the happiest effects.

In dysentery and the dysenteric diarrhoea of children I doubt if we have improved on the prescriptions of our predecessors—oilum ricini and Dover's powder. Santonica is as effectual for the round as oil of male fern is for the tape worm. I have never found the green vision complained of by some, though I always caution my patient

that such an effect might be produced. Of broom-tops I may tell this tale, as happening in my neighbourhood, though not in my own practice. A young woman with ascites was dosed in a neighbouring infirmary with broom and gin *secundum artem*, but with no effect. She was sent out, I believe, much as she went in, and desired, as usual, 'to return thanks at church on the first opportunity.' An old woman of her village took up her case, and cured her with broom-tops infused in gin! A hint to future *Pharmacopœia* compilers. Ice, though not an article of the *Pharmacopœia*, is often of great value to us. I pass by here its known efficacy in hæmorrhage of any kind, to mention only its use in certain stomach affections. It is often of service in an irritable state of the mucous membrane of the stomach, and sometimes will check vomiting when all other means fail. Of this latter case I have had lately a well-marked instance in my own practice. A farmer's wife, aged 70, not unaddicted to brandy, had been for some time suffering from great weakness, pain about the stomach and bowels, and an intermittent pulse with irregular action of the heart; suddenly she had vomiting, could retain nothing on her stomach, and appeared actually *in extremis*; so much so, that on each visit I expected to find her dead. There was no trace of blood in the vomit. I tried soda with dilute hydrocyanic acid, and bismuth with the acid, and limited her diet to milk. These all failed. I then desired her daughter to fetch in some ice from the water outside the house. She sucked a few pieces, and up to the present time has had no return of the vomiting. She has little or no pain where she had previously much. Her pulse and heart are now quite regular, and she can eat better, and is better than she has been for months.

And now, in conclusion, if I may act the part of judge, and sum up on the value of drugs, I should say, that whilst our forefathers put too implicit faith in drugs, nevertheless they are in certain affections, and in certain stages of certain diseases, of great value. I am far from being one of those who run away with the idea of the *post hoc propter hoc* argument; but when I see again and again the same

drug relieve the same symptoms, I am forced to believe in its efficacy, and to assume that by relieving such symptoms it puts our patient into a better way for his constitutional vigour (if he has any) to assert its rights against the inroads of disease.

XX. A SIMPLE MODE OF TABULATING SYMPTOMS IN CLINICAL RECORDS; WITH A SCHEDULE FOR TAKING CASES.

By W. OGLE, M.D. CANTAB. DERBY.

THE object of this paper is to exhibit a very simple method by means of which the symptoms in any clinical record may be clearly tabulated, under any number of headings, without destroying the continuity of the history.

The following schedule, which I have used for many years, will not only illustrate this method, but will set forth other incidental advantages.

SCHEDULE.

1. *General observations :*

Date; name; age; sex; married or single; residence; occupation; how long ill? how long off work? how long confined to the house? to bed? general aspect; any other striking feature of the case, *e.g.* as to condition of the patient on the whole, or in respect only to some one part.

2. *Cutaneous system :*

Skin; hair; nails.

Colour; degree of moisture or dryness, generally or locally; odour; eruptions, character, time of first appearance, continuance, disappearance under pressure, result, sores.

3. *Nervous system :*

Pain: seat of it, character, *e.g.* 'dull,' 'aching,' 'sharp,' 'cutting,' 'stabbing'; time of occurrence; duration; assigned cause;* how long since first attack?

Sleep; refreshing or not; dreaming.

Mental condition—memory; delirium; stupor.

Special senses—touch, pricking, pinching, heat; taste; smell; hearing, tinnitus; sight, condition of pupils, examination with ophthalmoscope.

Convulsion-fits; symptoms (premonitory, and subsequent), frequency; squinting.

* In recording any symptom, the time of its first occurrence or cessation, and the presumed cause, should be stated; also the remedies tried hitherto, and the apparent effect.

4. *Vascular system :*

Colour of . . . lips, ears, cheeks ; venosity, general or local.

Pulse, character, frequency (on standing, sitting, lying) after exertion, at rest.

Heart, situation of apex-beat ; regional dullness ; stethoscopic signs, situation of any abnormal sounds ; pulsations, wherever visible.

Edema.

Under this heading may also be conveniently given any constitutional eventualities (such as general or local wasting ; previous illness, *e. g.* an attack of fever ; residence in unhealthy climate, &c.) which may be thought worthy of mention.

5. *Respiratory system :*

Decubitus ; respiration, frequency, character ; degree of expansion of different parts of chest, comparing like portions of the two sides ; degree of resonance.

Percussion ; degree and kind ; vocal thrill.

Auscultation ; murmur (inspiratory, expiratory) ; other sounds ; the same on taking a deep breath ; vocal resonance ; whisper-resonance ; cough-sounds.

Expectoration, character, quantity.

Hæmoptysis, time of first occurrence ; presumed cause ; frequency ; colour of blood, quantity.

6. *Alimentary system :*

Teeth ; tongue ; fauces ; deglutition ; appetite, sensations after food ; nausea ; sickness ; state of bowels, ordinarily and after medicine ; general condition of abdomen ; local tenderness ; tympanitis ; fluctuation ; measurement.

Jaundice Liver—dullness, tenderness.

Spleen.

7. *Urinary system :*

Pain in loins ; swelling.

Urine ; frequency of

passing, by night and by day ; accompanied by
 pain, when and where ? quantity ; general
 appearance, examination of by nitric acid, and by heat ; deposit (1) as
 seen in vessel, (2) under microscope.

8. *Generative*

system :

The vari-

ous points need not be specifically enumerated.

The temperature is best recorded on a ruled chart, when it is to be noted every day or more than once a day. But when a single observation only is required, a 'margin'* midway between (4 and 5) the circulatory and respiratory 'margins' is convenient.

This mention of the word 'margin' will probably disclose the method if it has not been previously discovered.

It will be seen at once that the method for tabulating consists simply in this: that each group of symptoms has *its own proper margin for the first line of the sentence, but for the first line only*. The second and all subsequent lines are, in all the groups alike, to be written completely across the whole page. If, however, in writing under one group the facts might with equal propriety be assigned to another group, the sentence is to be broken at a convenient place, and carried on by dots only, until you arrive at the margin proper to the second group. Instances of this are given in the schedule under 4 and 7.

To keep the margins true, the corresponding numbers (1, 2, 3, 8) may be written at equal distances at the top of the page, and lines ruled vertically down from the top to the bottom. But this is not necessary; it comes to the same thing, and is preferable as leaving the paper clear, if the numbers are written at their proper intervals on another piece of paper, or on a card, that is exactly the width of the page of the note-book. This card, with the numbers marked on the upper edge, laid across the page just below where the note is to be written, gives the proper margin as accurately as ruled lines would do.

As to the schedule itself, any merit that it possesses is not due to its completeness; for to pretend to that virtue in so small compass would be absurd; but it is simple and definite, and that which is specially noteworthy is, that it possesses these qualities by reason of an underlying naturalness which pervades every part of it. In the first place, it is constructed upon a simple anatomical basis, which obviously will suit all cases, and which gives, on the whole, very well-defined groups of symptoms. But, further, there is in the groups themselves an order followed which, being the *natural* one, is easy to remember, and for the same reason, viz. that it is natural, gives greater unity and completeness to the observations. In all the aim is to arrange the symptoms in the order in which they come most readily under observation. This natural order is well shown in groups 5 and 6; i.e. what can be seen is recorded before what you learn by touch, touch before hearing, and in hearing note natural before forced breath-

ing, breathing before voice, voice before cough. Again, teeth before tongue, tongue before throat, throat before stomach, &c., instead of *vice versâ*, or without any order.

One other advantage of the schedule and method in combination is, that the greatest possible accuracy is facilitated, and that with a brevity that must be seen to be fully realised. For instance, in the out-patient room, without any assistance from pupils, at the rate of forty patients in the hour, I can take notes that are of material assistance. A symptom when first recorded occupies, it may be, several lines in writing, but ever afterwards it may be condensed into a few words, or even letters. Thus,

T. cl.; b. r.

in this its proper place, signifies not only 'tongue clean; bowels act regularly;' but also implies that any unfavourable 'alimentary' symptoms previously noted are now absent.

I conclude this brief paper by the following pertinent and important extract from the *Autobiography of the late Sir Benjamin Brodie*, p. 55:

'During the summer of 1804 a friend of mine, of the name of Jeffreys, was house-surgeon of the hospital, and my intimacy with him enabled me to pursue my studies there with great advantage. He had more knowledge of his profession than most young men of his standing. In the early part of the day I was always with him in the wards; and in the evening we were generally together. It was from him that I first learned the importance of keeping written notes of cases, a practice which I continued ever afterwards. These notes I have carefully preserved. They now form many thick quarto volumes of manuscripts, to which (and even to the earliest of them) I not unfrequently refer with advantage even at this advanced period of my professional life. My custom has been to take *short notes at the bedside of the patients in the day, and to expand them with the aid of my memory in the evening*. Thus they became an exercise of the memory, and instead of weakening tended to strengthen that important faculty. After an experience of nearly fifty years, I am satisfied

that no one can be well acquainted with his profession, either as a physician or a surgeon, who has not studied it in that manner. . . . I have always, during the many years in which I was a teacher and a hospital surgeon, endeavoured to impress on the minds of my pupils the necessity of making and preserving such written records of their experience; and *I have been often pained to observe how small a proportion have followed the advice which I gave them.* Some of them find a difficulty in doing so from . . .'

One reason not mentioned by Sir B. why so few comparatively take notes as students, and still more why of those few so many leave off the practice in after life is, that they find it so difficult to make any use of their notes; and this is so, both because of the discursiveness of their attempts, and also because it is so troublesome to hunt through a long history in search of any particular fact to which they may wish to refer.

A schedule, whether it be the one given here or not matters little, provided it be a good one, is the remedy for discursiveness; and the tabulation of the symptoms is what is wanted to make reference easy. By the method here described, in any record, extending it may be over several weeks, I can tell in an instant, without reading a single word, whereabouts any particular fact will be found. And for the purpose of analysis and comparison, any particular group of symptoms may be read off by themselves, by simply running the eye down the margin that belongs to that group. I hope, therefore, that the result of this paper will be to make bedside work more general among students in hospitals, and to help even busy practitioners to take valuable notes at comparatively little cost of time and trouble.

The following case from my note-book, taken at random, will further illustrate this paper:

1873, Oct. 24. B. J., 37, m., living at A—, born at N—, an iron-monger,
Applies for examination from a Life-office.

His father had paralysis one week before he died;
..... suffered also from ossification of heart, as
noticed three years before death; he was also
..... rheumatic, died æt. 75.

Mother died after three weeks' illness from disease of heart, from which she suffered one year.

She had also difficulty of breathing and spinal deformity in youth, from an accident.

Has three brothers, all older, all living.

Had two sisters, twins, who died in infancy.

Had smallpox mildly at twelve years after

vaccination.

Was revaccinated two years ago.

Had scarlet fever and measles in childhood.

Had 'inflammatory fever' with cough and pain in left side (1863); was confined to bed two weeks, and in house one week more.

P. 84. R. 24. T. cl.; app. good; b. r.; takes a little brandy-and-water every night.

I find nothing amiss on examination of chest.

The l. post. aspect looks a little tubby, but the resonance on both sides is equally good.

T. 98°.

Urine gives a deposit, on addition of nitric acid, like albumen, but it is formed on the top of the fluid, and not at the junction of the urine with the acid; also it is redissolved on excess of acid, and by heat, and it is not formed by heat alone.

I pass him, recommending more outdoor exercise, and to leave off brandy-and-water.

It matters not what headings are chosen, and it signifies very little how many they are. When once the *method* is understood, the tabulation may be made (even on the page of an ordinary-sized note-book) of twenty groups of symptoms almost as easily as of ten. The same method, for instance, serves for indexing the diseases, or for the names of the patients. They may be written, and in writing may be tabulated, on one and the same page, till it is full, instead of on one, two, or more separate leaves for each letter, *e.g.*

Albuminuria, page 60.

Marasmus, 4.

Diabetes, 7, 32.

Neuralgia, 53, 74. Whooping-cough, 6.

Colic, 94.

Jaundice, 5, 43.

Quinsy, 9, 13.

Hæmaturia, 17.

Tetanus, 11.

&c. &c.

XXI. REPORT ON CASES ADMITTED INTO THE OBSTETRICAL DEPARTMENT

FROM APRIL 1873 TO JUNE 1874.

By R. J. LEE, M.D. CANTAB.

INDEX.

<i>Name.</i>	<i>Disease.</i>
1. Wakefield . .	Carcinoma of ovary.
2. Watling . .	Fibro-myoma of the uterus.
3. Hall . . .	<i>Myxoma</i> of the chorion; <i>hydatids</i> .
4. Welby . .	Prolapsus of vagina.
5. Stephens . .	Mucous polypus of uterus.
6. Boone . . .	Metritis.
7. Crate . . .	Metritis sub-acute.
8. Moore . . .	Miscarriage; fibro-myoma.
9. Thorne . .	Carcinoma of os and cervix uteri.
10. Hayward . .	Ovarian tumour.
11. Corner . .	Fibro-myoma of uterus.
12. White . . .	Hysteria.
13. Chandler . .	Large fibro-myoma of uterus; retention of urine.
14. Powell . .	Tumour—ovarian?
15. Parnell . .	" " with extreme distortion of legs from rickets.
16. Grove . . .	Puerperal peritonitis.
17. Pierre . . .	Large fibro-myoma of uterus.
18. Roche . . .	" "
19. Howes . . .	Vaginitis.
20. Wilkinson . .	Hypertrophy and congestion of the os uteri.
21. Laing . . .	Fibro-cellular polypus of cervix uteri.
22. Spring . . .	Tumour of uterus.
23. O'Brien . .	Puerperal abscess.
24. Porter . . .	Ovarian tumour.
25. Bates . . .	Hæmorrhage at eighth month of pregnancy; miscar- riage.
26. Hancock . .	Hysteria.
27. Harvey . . .	Superficial carcinoma of vagina.
28. Scoins . . .	Metritis after abortion; retained placenta.
29. Smith . . .	Carcinoma of os and cervix uteri.

<i>Name.</i>	<i>Disease.</i>
30. White . . .	Ovarian tumour.
31. People . . .	Hysteria.
32. Green . . .	Carcinoma recti; transferred.
33. Cook . . .	Hysteria.
34. Palmer . . .	Fibro-myoma of uterus.
35. Pearse . . .	Hysteria.
36. Tout . . .	Myomatous polypus of the uterus; removed by ligature.
37. Sullivan . . .	Puerperal cellulitis.
38. Carter . . .	Myoma of uterus.
39. Hambling . . .	Epilepsy; transferred.
40. Thomas . . .	Tubercular ulceration of os uteri.
41. Terrell . . .	Hypertrophy of the left labium.
42. Carter . . .	Carcinoma of os uteri.
43. Welsh . . .	Retained placenta.
44. King . . .	Abortion.
45. Hedger . . .	Transferred.
46. Welsh . . .	Ovarian disease.
47. Humphreys . . .	Pelvic abscess.
48. Sayles . . .	Transferred.
49. Manley . . .	Carcinoma of vagina, &c.
50. White . . .	Amenorrhœa.
51. Prosser . . .	Inflammation of right leg after miscarriage.
52. Maclean . . .	Sub-acute metritis.
53. Jones . . .	Sub-acute inflammation and catarrh of vagina and os uteri.
54. Back . . .	Sub-acute inflammation and catarrh of vagina and os uteri.
55. Charman . . .	Carcinoma uteri.
56. West . . .	Large fibro-myoma of uterus.
57. Sinclair . . .	Abortion in fifth month; syphilis.
58. Prentice . . .	<i>Myxoma</i> , or hydatids of chorion.
59. Freeland . . .	Ulceration of os and cervix; advanced phthisis.
60. Seabrook . . .	Metritis.
61. Beresford . . .	Transferred.
62. Shepherd . . .	Ovarian tumour.
63. Dawkins . . .	Metritis.
64. Porter . . .	Carcinoma uteri.
65. Morley . . .	Metritis.
66. Lockwood . . .	„ retroflexion.
67. Jackson . . .	Abortion; retained placenta.
68. Marshall . . .	Metritis after abortion.
69. Smith . . .	Metritis.
70. Mills . . .	Hysteria; transferred.
71. Flatter . . .	Metritis.
72. Ford . . .	Ovarian tumour.
73. Flory . . .	Carcinoma uteri.
74. Hewson . . .	Septicœmia after miscarriage.
75. Basset . . .	„ sub-acute.

<i>Name.</i>	<i>Disease.</i>
76. Kenney . .	Transferred.
77. Archdale . .	Metritis.
78. Steers . . .	"
79. Smith . . .	Transferred.
80. Gillingham . .	Carcinoma uteri.
81. Pantlin . .	Large fibro-muscular tumour of uterus.
82. Baker . . .	Hysteria; transferred.
83. Dundas . .	Carcinoma uteri.
84. Hogarth . .	Metritis.
85. Woodcock . .	Prolapsus uteri.
86. Weller . . .	Metritis.
87. Jewell . . .	Post-partum hæmorrhage from fright.
88. Fleming . .	Pregnancy.
89. Hastings . .	Retroversion.
90. Farmer . . .	Fibroma of uterus; pregnancy.
91. Holmes . . .	Transferred.
92. Durham . .	Fibroma of uterus.
93. Wyatt . . .	Transferred.
94. Snell . . .	Carcinoma of ovary.
95. Brown . . .	" of uterus.
96. Eldridge . .	Transferred.
97. Cooper . . .	Debility; transferred.
98. Artlett . . .	Fibro-muscular tumour of uterus.
99. Elliott . . .	Carcinoma of ovary.
100. Thacker . .	Fibrous tumour of uterus.
101. Cornell . .	Retained placenta after abortion.
102. M'Hardy . .	Fibrous tumour of uterus.
103. Slatter . .	Retroversion of uterus.
104. Smith . . .	Ovarian tumour.
105. Tyson . . .	Metritis; abscess.
106. Laburn . .	Hysteria.
107. King . . .	Prolapsus uteri.

CASE I. *Ovarian tumour.*

Æt. 38; single. The symptoms of disease occurred a year and a half before admission into the Hospital, and were attributed to a fall. The tumour is globular, dense, and movable, rising about an inch above the spine of the ilium, and lying within the right iliac half of the abdomen. The vagina is considerably compressed by the pelvic portion of the tumour, and the tissues round the uterus and rectum are involved. The symptoms of irritation of the urethra and obstruction of the rectum diminished from the simple effects of rest. The extent of disease and recent rapidity of growth of solid tissue were unfavourable to surgical treatment.

CASE II. *Fibro-myoma of the uterus.*

Æt. 51; married; no children; May 2. This patient was in the

Hospital a month ago, suffering from the same symptoms as at present, viz. swelling of the legs, with loss of sensibility, pain, and partial paralysis, difficulty of micturition and defecation, produced by a large fibrous tumour of the uterus, which was found to rise two inches above the pelvis, and occupied its cavity. The anterior lip of the os uteri was elongated; the posterior diminished in size. She obtained relief from rest and the use of warm baths, &c.

On referring to the index, it will be seen that fifteen cases of tumours of a similar nature to this were under treatment. It would appear that the symptom of hæmorrhage, which is sometimes severe in this class of cases, may be used as a means of diagnosing the nature of the tumour to the extent of determining whether it is composed chiefly of fibrous or muscular tissue. As might be expected, where there is excess of muscular tissue there is greater vascularity, and consequently the symptom of hæmorrhage is more decidedly marked. It is also possible to distinguish by the density of the tumour this point in pathological diagnosis.

It would appear from the histories of such cases that the growth of muscular tissue may take place with considerable rapidity, while the formation of dense fibrous tumours is a more gradual and prolonged process. The alteration in the shape of the os uteri, according as the posterior or anterior part of the uterus is affected, or the body of the uterus is generally increased in size, is such as may be explained on mechanical principles; for in the first case the posterior lip of the os uteri is diminished, if not obliterated; in the second, the anterior lip is similarly affected; while in the last-mentioned condition the os and cervix uteri can be hardly distinguishable.

It was found that the administration of remedies internally, which are useful in other forms of hæmorrhage, was not so satisfactory as local treatment with astringent injections, partly on account of the other symptoms being increased when the hæmorrhage was diminished, and partly because those remedies were not constant in their effects. It was apparent that the condition of the patients was decidedly improved during the time they were under treatment, from the fact that when they left they returned to their ordinary duties, and were able to perform them

till gradually the symptoms returned and obliged them to apply again for admission (*vide* cases).

CASE III. *Myxoma or hydatids of the chorion.*

Æt. 44; married, and the mother of eight children, six of whom are living, the youngest six years old; April 30, 1873. Two years ago she miscarried in the early months of pregnancy. Nine weeks ago symptoms of pregnancy appeared; three weeks later she was attacked with pain in the abdomen and uterine hæmorrhage, which have continued more or less severely till now. Her appearance indicates the serious extent to which she has suffered from loss of blood. On examination of the abdomen, the physical signs of pregnancy were found to be present, though the tumour was larger considerably than accorded with the supposition that she was about three months pregnant. It also had a density unnatural to the pregnant uterus at any period after conception. On examining internally, the os uteri was found to be partly open, and a portion of diseased placenta which protruded was removed. Before I had left the ward—that is to say, in the course of half an hour—a large quantity of the foetal membrane affected with myxoma was expelled without much pain or hæmorrhage. The patient made a rapid recovery, requiring no treatment beyond that which an ordinary case of premature labour demands.

Another case similar to this occurred a few months later (58), in which the particular character of the tumour was similar to that referred to here; but the symptom of hæmorrhage was not present. The case was admitted under the care of the late Dr. Fuller, as there was no apparent reason for referring her to the Burton Ward; that is to say, there were no symptoms of pregnancy or uterine disorder.

It is not a matter of very great importance by what name we call this disease, provided that the term we agree to apply to it does not involve any theory as to its origin or pathological nature. It is therefore with hesitation that I have ventured to attach the terms 'myxoma or hydatids' to these cases; for they both imply that the gelatinous spherical masses of the chorion which characterise the disease are to be referred to a particular class of pathological alterations.

The term 'myxoma' is certainly no improvement on that of hydatids; for the resemblance between the tissue of a chorion villus and a myxomatous growth, in origin or composition, is not more exact than between the altered

villi and hydatid cysts. It is important that the simple fact should be known, that the disease is produced by the growth of the villi of the chorion in their integrity; that is to say, the gelatinous tissue of which the spherical masses is composed has the same microscopical character as that of the chorion villi. At the same time, there is a greater amount of aqueous fluid in the altered villi than when they cover the chorion during the first weeks of pregnancy. In order to explain the pathology of the disease, it is necessary to investigate the condition of the villi of the chorion previous to their coalescence with the decidua. The question which occurs to the pathologist is this: Does the change in the chorion villi which results in the formation of these botryoidal masses commence before or after that process of coalescence? That is to say, is it possible for those villi which have once become incorporated with the decidua to resume active growth, and develop without restraint? It may be asked also whether the morbid changes occur in the villi of the true placenta alone, or also in other villi of the chorion; for it is necessary to distinguish clearly the difference between those villi which become atrophied and those which subsequently receive the foetal vessels.

In the two instances related in this report, it was observed that there were no blood-vessels in the gelatinous masses, and that the chorion was extensively covered with them, from which it might be concluded that the process of coalescence between the villi and the decidua had not taken place.

There still remains much to be determined regarding the mode in which a villus incorporates itself with the decidua—a process, no doubt, in which both structures are concerned. The hæmorrhage in Case III. depended on the fact that the mucous secretion which fills the os uteri in pregnancy had been forced out by the diseased structures; while in Case LVIII. the os uteri was still closed with the secretion. Without discussing the best mode of removing the contents of the uterus, it appears from these cases that there is a considerable tendency to such an occurrence being produced almost spontaneously, or at least that

uterine contractions are much more easily excited than in natural pregnancy.

CASE V. *Mucous polypus of uterus.*

Æt. 33; single. Five weeks ago had a sudden attack of uterine hæmorrhage, which occurred a week later than the menstrual period. For three weeks the loss of blood continued, and produced the usual constitutional symptoms.

On the removal of a small mucous polypus about the size of a filbert, soft and vascular, with a thin pedicle, the hæmorrhage ceased.

CASE VII. *Sub-acute metritis.*

Æt. 27; single. For eight or nine years has suffered pain in the pelvis, irregularity of menstruation, and mucous discharge. The posterior lip of the os uteri hypertrophied; the uterus not freely movable; the tissues posteriorly indurated and painful on pressure; and general constitutional debility.

Warm baths, tonics, and rest afforded relief.

CASE VIII. *Miscarriage.*

Æt. 32; mother of seven children; May 21. Five months ago she miscarried, and recovered quickly. Two months ago was attacked with uterine hæmorrhage, which has continued more or less since.

The diagnosis of pregnancy was made on June 3d. In the anterior superior part of the uterus a slightly-indurated prominence was perceived through the abdominal wall, which was probably caused by a fibrous tumour.

June 13. She aborted of a fœtus of about five months' conception.

The placenta was removed with difficulty, and was in a condition of partial degeneration.

It was found on her recovery that there was evidence of the existence of a fibrous tumour in the posterior part of the uterus. It seems from clinical observation that the myomatous tumours of the uterus diminish in size after parturition, but that the recurrence of pregnancy to some extent delays the formation of such tumours.

CASE IX. *Carcinoma uteri.*

Æt. 67; married; no children. The disease commenced about five months ago with profuse discharge, and the constitutional condition is such that she is almost in a state of collapse. The upper part of the vagina is contracted, the os uteri hardly distinguishable, the peri-uterine tissues indurated, and the body of the uterus fixed. This patient left after a month's stay in the Hospital.

The admission of cases like the above into the Hospital, I think, is justified by the results of our observations on the effect of treatment in prolonging life and relieving some of the distressing symptoms which occur in these

cases, and render them more difficult to treat in private life than in hospital wards.

The question which must be answered before it is possible to establish any principle of treatment in many instances of the disease is this : To what cause are we to attribute the serious constitutional disturbance which is not unfrequently observed when the destructive process has made comparatively no great progress?

For instance, it sometimes happens that death takes place when there is no sufficient reason to account for it in the pathological condition of the uterus and vagina; and the symptoms which preceded death have not resembled those which are observed in the latest stages of extensive carcinomatous destruction of tissue.

The resemblance which the symptoms alluded to bear to those produced by septicoemia induced us to hope for some benefit from such a plan of local treatment as would be required in a case of infection from retained placenta, and such general treatment as is found most appropriate in other cases of septicoemia. It was satisfactory to us to observe that by the frequent and plentiful use of injections of disinfectants into the vagina and cavity of the uterus, and by attention to the cleanliness of the patients and atmospheric conditions of the ward, very great improvement took place in most of the cases, and the benefits of the Hospital were not abused by their admission.

The fact long since established, that the same pathological changes may occur in cases of carcinoma which are met with in the puerperal state, and of which phlebitis and metritis are the usual forms, would naturally lead to the separation of the symptoms produced by septicoemia from those which precede the termination of life in cases of prolonged disease, where the system is exhausted by hæmorrhage and important organs are destroyed by ulceration.

CASE XIII. Large fibro-myoma of uterus.

Æt. 30; widow; admitted for retention of urine. The tumour is developed in the posterior wall of the uterus, and is about the size of a small foetal head. It rises an inch and a half above the pelvis.

The catheter was used for a few days, and a warm bath twice a day. She left in fourteen days relieved.

CASE XVI. *Post-partum inflammation.*

Æt. 30; admitted, five weeks after delivery, June 19. For fourteen days she had progressed well, and had left the institution where she was confined. Symptoms of inflammation of the tissues of the right side of the uterus occurred during the third week, and have continued till now.

The abdomen is swollen, the thigh is drawn up, and there is great pain and induration of the tissues above and below Poupart's ligament on the right side. After being under treatment for nearly three months she was sent to Wimbledon, and returned home, after a short stay there, in good health.

The usual sequence of symptoms and pathological changes took place which precede and follow the formation of an abscess in the tissues after cellulitis. The opening of the abscess took place spontaneously into the vagina. The treatment found most successful in these cases is the application of leeches to the abdomen, followed by hot fomentations where the pain is acute. Rather active doses of calomel and salines are administered at first, followed by opium and small doses of mercury or iodide of potassium.

CASE XVII. *Large fibro-myoma of uterus.*

Æt. 38; widow; admitted June 23. The tumour in this case was symmetrical, painful on pressure, somewhat softer than such tumours usually are, and of such size that the superior margin passed beneath the umbilicus, and the lower part occupied a large space in the pelvis. She was suffering from all the symptoms which follow profuse hæmorrhage, as well as the general effects on the lower extremities of pressure on the nerves and vessels in the pelvis.

It was found that the injection of ice-water into the vagina was more successful in arresting the hæmorrhage without increasing pain than the various other remedies which were used.

CASE XVIII. *Case similar to XVII.*

Æt. 39; married. The tumour was harder, and situated on the right side; more globular and of denser structure than XVII. The disease had existed for more than four years, and had produced no serious symptoms. The meatus was surrounded with small pediculated growths of mucous membrane, which interfered with micturition. These were removed by caustic.

CASE XX. *Hypertrophy and congestion of os and cervix uteri.*

Æt. 20; married ten months. General debility and anæmia, pain in the posterior part of pelvis, profuse discharge of mucus from vagina, and occasional dysuria.

Cases of this kind are seldom serious enough to admit
VOL. VII. T

into the hospital. It is usual to regard the condition of the os and cervix uteri and vagina as depending on sub-acute inflammation; but it was found in this, as in other cases, that the best plan of treatment was that which is adopted in acute inflammation. The use of warm baths, with the injection of warm water for twenty minutes or half an hour twice a day, generally relieved the pain and diminished the discharge, so that recovery would sometimes follow without the use of astringents. It would seem desirable to diminish the state of passive congestion which characterises these cases before attempting to restore the mucous membrane by stimulating its surface.

CASE XXI. *Polypus of cervix uteri. Fourteen days.*

Æt. 45; married. The symptoms of pain in the pelvis, hæmorrhage, and mucous discharge have been gradually increasing for a period of three years. The tumour was the size of a walnut, and composed of close fibro-cellular tissue covered with the cells which characterise the mucous membrane of the cervix uteri. It was removed through the speculum, without hæmorrhage, by tension with forceps.

CASE XXIII. *Puerperal abscess.*

Æt. 26; admitted June 30. Nine weeks ago was confined; made a good recovery, and left her bed fourteen days after. The following day was attacked with the usual symptoms of inflammation on the left side. The case was similar to XVI. in most respects, the tissue on the left side of the pelvis and femoral region being affected. The abscess opened into the rectum on the 14th August, and continued to discharge for a few days after the formation of an external opening above Potpart's ligament, which occurred on Sept. 9. There was an escape of air and faecal matter with the pus for a month after; but gradually the abscess closed, and she left the Hospital in good health.

CASE XXV. *Hæmorrhage in the eighth month of pregnancy.*

Æt. 30; married; July 2. Had a sudden attack of hæmorrhage while exerting herself at work. All the symptoms of advanced pregnancy. The hæmorrhage ceased after she was admitted; a fortnight after she miscarried. Recovery satisfactory.

CASE XXVIII. *Metritis after abortion and retained placenta.*

Æt. 33; married; youngest child eight years old; July 2. In April last she imagined that she was pregnant. Three weeks ago she had an attack of flooding in bed at night, and the hæmorrhage continued for a week. For the next week she went about her duties, but a week ago was attacked with acute pain in the abdomen and left side of pelvis. There was no discharge such as to indicate the existence of retained placenta; but on July 30 some small portions of decomposed placental

tissue were discharged. She recovered slowly. The cellular tissue on the left side of the uterus was indurated and infiltrated with the products of inflammatory action. (*Vide XLIII. LXIX. CIV.*)

CASE XXXVI. Myomatous polypus of the uterus removed by ligature.

Æt. 55; single; July 23. The symptoms of a polypus uteri have existed for the last six weeks, and a week ago the tumour was external. It was replaced, and can now be felt in the pelvic cavity, perfectly spherical, and so large that the finger cannot be passed up to the os uteri. The ligature was applied with Gooch's canula, and she left the Hospital August 1.

CASE XXXVII. Pelvic cellulitis.

Æt. 30; confined six weeks ago. Symptoms of inflammation occurred three weeks after, when she had been at work for a day or two.

There was no particular occasion to relate this case, except for the purpose of drawing attention to the frequency with which this form of inflammation occurs in the working classes, and the late period after confinement at which it may attack puerperal women. The theory which prevails very generally that puerperal fever is usually the result of infection by the actual contact of the hand of the nurse or practitioner is too exclusive, and does not explain the origin of the disease in that class of cases which is so common in this country, and of which several instances are included in this Report.

CASE XL. Tubercular ulceration of the os uteri.

Æt. 35; married, and has one child, æt. 13; is under the care of Dr. Dickinson for pulmonary phthisis. She has been suffering for four months from pain in the uterus and discharge of blood from the vagina.

The mucous membrane of the vagina is healthy. The os uteri is considerably broader and more prominent than natural. Its surface is slightly irregular and tuberculated. The body of the uterus is fixed in the pelvis, and the peri-uterine tissues are indurated. She has also a fistula in ano.

It is certainly true that tubercular ulceration of the os uteri is a disease that is seldom met with; for which we must look for an explanation in the fact that a tendency to tubercular degeneration seldom exhibits itself in the mucous membranes previous to its commencement in other organs. It is mostly in cases of advanced tubercular phthisis that we find the os uteri and vaginal mucous membrane affected; and this symptom must be regarded as most unfavourable in the prognosis of a case. The

destruction of tissue, which is a permanent result of true tubercular deposit, whether it occurs in the skin or other tissues, appears to characterise the disease when it affects the os uteri.

CASE XLIII. Retained placenta.

Æt. 31; Aug. 6. Was confined six months ago at the full period. She was about four months pregnant when she had a sudden attack of hæmorrhage, followed by continuous loss of blood for a week, when she aborted. It is three weeks since this occurred. A portion of the placenta was retained; hæmorrhage recurred a week after, when it was discharged in a state of decomposition. The hæmorrhage had ceased when she was admitted, and after a week's rest and good diet she was well enough to be sent out.

CASE XLVI. Ovarian tumour.

Æt. 26; single. This patient was in the Hospital three years ago, and was tapped for ovarian tumour, thirteen pints of clear fluid having been drawn off. There is now a solid tumour of the right ovary, composed of two spherical parts, of considerable size. An operation was deferred for the present.

CASE XLVII. Metritis. Abscess between the uterus and rectum.

Æt. 28; single. Six weeks ago, during menstruation, took cold, and the menstrual flow suddenly stopped. She suffered from great pain in the abdomen and across the back, and a fortnight afterwards found herself unable to relieve the bladder. Ten days ago an abscess burst into the rectum, and has continued to discharge till now. She left the Hospital in a fortnight sufficiently well to resume her duties.

CASE LI. Cellulitis and coagulation of blood in veins.

Æt. 29; married; Sept. 17. Was delivered of a child (seven months) on August 30. The placenta was presenting; an attempt was made to deliver by turning, but the os uteri was not sufficiently dilated. A few hours afterwards the child was born naturally, the placenta being first expelled. A few days afterwards the patient complained of pain and swelling in the right leg, which continued until her admission into the Hospital.

On admission, the patient was extremely weak; pulse quick, tongue coated, bowels confined. The right leg and foot were oedematous, and the patient experienced great pain in the right femoral region, increased by pressure. She was ordered the following: Vini antim. $\mathfrak{m}\mathfrak{x}$.; pot. nitratis, gr. v.; vini opii, $\mathfrak{m}\mathfrak{x}$.; haust. salicin. ad $\mathfrak{f}\mathfrak{ss}$. t.d.s. Opii recini, $\mathfrak{z}\mathfrak{ss}$. statim sum.

The symptoms of extensive inflammation of the cellular tissue of the thighs on both sides and obstruction to the venous circulation continued till the 3d October, when a sudden attack of dyspnoea and violent palpitation occurred in the night, and the general distress occasioned by coagulation of blood in the right side of the heart was experienced for

several hours. A faint systolic bruit was heard next morning over the base of the right ventricle. The valvular sounds on the left side were quite natural. The usual frequent dry cough, great pallor, profuse perspiration, and occasional attacks of violent rigor, were persistent during the day and night. In the evening of the next day a similar attack occurred, and four leeches were applied to the præcordial region, with the effect of giving considerable relief.

The temperature did not rise above $100^{\circ}1'$ during these attacks; but previous to them a very remarkable and sudden fall was observed from 99° to $98^{\circ}5'$. On the 17th October she had another attack similar to those described above, but less severe. The chief symptoms observed during this period were dyspnoea and acute pain in the thorax. The legs were diminishing, and the severe symptoms gradually subsiding.

On the 24th it is reported: 'Is in low spirits; breathing quickly—30 per minute; is suffering pain in the left side below the nipple. Pulse fairly strong; 114. The heart's sounds clear. Has had no attack of shivering for the last few days.'

After this she made rapid improvement, and left the Hospital for the Morley Convalescent Hospital on November 18.

It should be mentioned that in a previous pregnancy she had suffered from phlebitis.

A few cases similar to the above have been recorded, and the sudden occurrence, in cases of venous coagulation, of the train of symptoms above described is now well known to indicate the formation of coagulum in the pulmonary artery and right side of the heart.

The sudden diminution of temperature has also been recorded, though the cause has not been explained.

CASE LVI. *Large fibro-myoma of uterus.*

Æt. 45; married; Oct. 13. Was admitted for retention of urine for forty-eight hours. More than a year ago was in the Hospital in the same condition. A fibrous tumour occupied the cavity of the pelvis, and was felt in the abdomen. The anterior surface was pressing on the urethra. The catheter was used twice daily, and a warm bath ordered night and morning. Two days later she had no difficulty in micturition, and was discharged on the 25th.

CASE LVIII. '*Myxoma*' or '*hydatids*' of the chorion.

Æt. 39; married; Oct. 21. Has had three children, all alive. Nine months ago she had an abortion. For the last five months the catamenia have been irregular; six weeks ago she had an attack of uterine hæmorrhage, which has continued to some extent since.

'The tumour of the abdomen reaches to the umbilicus, is felt with difficulty, and has the general character of the gravid uterus. There is a mucons secretion in the cervix uteri. The glands of the os uteri are

enlarged. The os uteri is considerably larger than natural. The nipples are surrounded with pigmented areolæ. General constitutional symptoms of pregnancy are present.'

Oct. 29. A large quantity of myomatous placenta was expelled spontaneously, without much pain or hæmorrhage.

Discharged, Nov. 15, in good health.

CASE LIX. *Ulceration of os uteri. Advanced phthisis.*

Æt. 22; married; one child, æt. nine months. She inherits on the maternal side predisposition to phthisis; she has suffered from hæmoptysis, pleurisy, and has physical signs of tubercular deposits in the lungs. There has been a profuse discharge of muto-purulent fluid, sometimes tinged with blood, for eight months. On examination of the vagina there were found several elevated nodules, and the surface was irregular. The os uteri was similarly affected.

CASE LXVI. *Metritis sub-acute. Retroflexion.*

Æt. 28; married; one child, æt. four months; Nov. 24. 'The uterus is fixed; the tissues around infiltrated; the os uteri healthy. The perineum has been lacerated. She left her bed a fortnight after confinement; has since suffered pain in the uterus and slight hæmorrhage.'

Dec. 9. The os uteri is situated close behind the symphysis pubis, and the body of the uterus was felt in the lower part of the sacral cavity. The cervix was flexed at right angles to the body.

Between the time of admission and the last report she was treated for metritis and symptoms of sub-acute inflammation of the peritoneum with warm baths and tonics.

The pain and induration in the pelvic tissues diminished considerably, and she was discharged Dec. 9.

CASE LXVII. *Metritis. Retained placenta.*

Æt. 24; has one child, five years of age; Oct. 16. She is suffering from the local and constitutional symptoms of puerperal peritonitis. She states that the catamenia ceased in August; since then she has been suffering from pain in the pelvis and abdomen, sickness, and occasionally has had slight hæmorrhage from the uterus. The symptoms of inflammation subsided, and she left the Hospital, five weeks after admission, convalescent. The tissues around the uterus, especially posteriorly, were affected to some degree by inflammatory action.

A week after she left the Hospital she returned, bringing with her small portions of tissue discharged from the uterus four days after her return home, which we found to be composed of decidua and foetal membranes. The symptoms of peritonitis were more severe than when she was first admitted. There was slight hæmorrhage for a few days, but no portions of placenta.

'The uterus is fixed, the os uteri slightly larger than natural, and the tissues round the uterus exceedingly dense, and painful on pressure.'
On Dec. 16 she had recovered sufficiently to leave the Hospital.

CASE LXVIII. *Metritis after abortion.*

Æt. 25; married; Dec. 1. 'Six weeks ago aborted in the fifth month. She caught cold, and on getting up a week after found the right leg painful and swollen. She also had some amount of pain in the right side of the abdomen.

'The right leg is flexed on the abdomen; there is no pain while the patient is lying quiet, but on attempting to extend the leg she suffers considerably. There is distinct induration to be felt low down in the right iliac fossa, not dull on percussion, elastic, or fluctuating.

'Internally this change of tissue extends round the right side of the uterus and pelvis. The uterus is not fixed; the cervix is pressed to the left side.'

CASE LXIX. *Puerperal metritis.*

Æt. 25; married; Dec. 5. Was delivered of a child at the full period, six weeks ago, at the York-road Hospital. On the eleventh day was able to leave her bed, and ten days later left the Hospital. Soon after she returned home she felt pain in the right hip, back, and lower part of the abdomen, and the secretion of milk was arrested.

'She has all the symptoms and conditions of sub-acute inflammation of the right side of the uterus.' She was treated with hot baths and small doses of opium, with occasional active purgatives.

Dec. 20. She left recovered.

It will be observed that the form of inflammation which is most commonly met with amongst the labouring classes in England has not the acute character which distinguishes that known in the early part of this century as puerperal fever.

It certainly would seem that abortion is a far more common occurrence in that class of society in which we are accustomed to expect most physical power and constitutional health; and that the occurrence of inflammation after abortion is by no means exceptional. There can be no doubt, from the history of all the cases entered in this Report under the head 'metritis,' that the process of inflammation originated by self-infection from the decomposition of those tissues which belong neither to the foetal nor maternal system after their separation, and the removal of which from the surface of the uterus is the last, not least, important in the series of changes which take place in the processes following parturition.

There are reasons for thinking that some of the cases of metritis were the consequences of abortion, which is not mentioned for the reason that it was denied by the patients.

This case and the following may be compared, as the symptoms were similar, though the one was delivered at home and the other in an institution.

CASE LXXI. *Puerperal metritis.*

Æt. 21; married; Dec. 8. Confined of her first child seven weeks ago; got up on the ninth day; on the eleventh day was attacked with violent pain in the left side from the groin upwards, tender on pressure; relieved by drawing up the thigh.

There is the condition of general weakness and local pain observed in the last case, and the tissues between the uterus and rectum were considerably indurated and swollen.

Dec. 18. Recovered.

It is usual to treat these cases with an active aperient, followed by small doses of pil. hydrarg. co. or pil. hydrarg. subchloris co., hot baths and injections, tonics and sedatives.

CASE LXXIII. *Carcinoma uteri.*

Æt. 40; Dec. 10. The symptoms of carcinoma have existed for six months. She is suffering now an attack of cancerous cellulitis, occasioning considerable distension of the abdomen, and pain. The tissues around the uterus are indurated. The os and cervix and anterior part of vagina affected with cancerous ulceration. Relief was obtained from hot baths and sedatives, and considerable constitutional improvement had taken place when she left the Hospital, Jan. 10.

CASE LXXIV. *Septicæmia after miscarriage. Retained placenta.*

Æt. 26; married; Dec. 7. It is now sixteen weeks since she miscarried, in the sixth week of pregnancy. She has gradually lost flesh; become very anæmic; has suffered pain in the abdomen, greatly increased on pressure. The pulse is 140. The right leg is bent upon the abdomen. There is some hæmorrhage from the vagina.

Dec. 26. 'Seems rather weaker. Face excessively anæmic, with a slightly yellow discoloration of the skin. There is a dark offensive discharge from the vagina. Complains very much of pain in the abdomen.'

Dec. 30. 'There is considerable cardiac pulsation perceptible in the intercostal spaces. There is a soft systolic murmur widely distributed over the upper part of thorax and head in the arteries of the neck.

'There has been considerable hæmorrhage from the uterus, frequent sickness, and pains in the right side of the pelvis, extending along the inner side of the right thigh. Temp. 100°; pulse, 132.' There was no assignable cause for cardiac disease.

Transferred to the care of the physician.

Jan. 23. She has been sent back to the Burton Ward, in some respects improved. The uterus was found to be generally enlarged, and the tissues around infiltrated.

She sank without the occurrence of any well-marked symptoms in addition to those already mentioned, with the exception of pain in the chest and gradual loss of consciousness.

A few ounces of clear fluid in each pleura.

Lungs very oedematous, tough, and congested at the lower part. Pericardium natural.

Heart weighed twelve ounces. A little soft atheroma immediately above the aortic valves; otherwise the heart was healthy. Spleen natural; five ounces. Liver pale, anæmic, slightly fatty; forty-four ounces.

Uterus was fixed, especially on the right side. It contained, in the upper part of the cavity on the right side, a small sloughing mass of placenta.

Right common iliac vein was full of coagulum.

There were no purulent collections in any part of the tissues around the uterus or in other parts of the body, *Vide Case CI.*

CASE LXXVII. *Metritis.*

Æt. 30; married; with one child, æt. 7; Jan. 7. One miscarriage four years ago, and one a year since. She is suffering from pain in the abdomen and uterus, anæmia, and general weakness. The tissues between the rectum and uterus were painful and indurated. She was ill for two months after her first confinement, and gives such an account as to lead to the conclusion that she suffered from metritis at the time. Warm baths, saline purgatives, with sulphate of iron and dil. sulph. acid, and full diet, were prescribed with benefit.

Left Hospital, January 13, convalescent.

CASE LXXVIII. *Metritis after abortion.*

Æt. 18; married; Jan. 8. Travelled a long distance by rail five days after abortion, which occurred, six weeks ago, at the fourth month of pregnancy. She has pain in the left side of abdomen and left iliac region, slight rigors, and general debility. The tissues on the left side of the uterus and posteriorly are painful on pressure, and considerably indurated.

Warm baths; hydr. subch. gr. j.; pil. saponis co. gr. ij. o.n.; haust. cinchonæ acid. ʒiss. bis quotid.

Jan. 31. Recovered.

CASE LXXXV. *Prolapsus uteri. Operation.*

Æt. 60; married; Feb. 4. Has had prolapsus uteri and ulceration of os uteri four months. The perinæum has been lacerated some years ago. It was found impossible to adapt a pessary to this case. The mucous membrane was divided from the integument on each side of the perinæum one inch in length, the former turned up and the

latter down, so as to expose broad surfaces, which were held in contact by wire sutures. Healing took place very rapidly, and an artificial perinæum was formed, which it was thought would assist in preventing the descent of the uterus.

CASE LXXXVII. *Post-partum hæmorrhage.*

Æt. 32; married; Feb. 6. Was confined a month ago; has not recovered; states that a portion of the placenta remained in uteri, and was removed a few days ago. There has been a considerable amount of hæmorrhage since. She also says that she was doing well till the fifth day after her delivery, when she received a sudden fright from one of her children having a narrow escape from being burnt in an explosion; and to this cause she attributes the hæmorrhage which occurred a few hours later. The secretion of milk continued without interruption.

Astringent injections; haust. quina. March 16. Recovered.

CASE XCIV. *Carcinoma of ovary.*

Æt. 22; married; youngest child two months old; Feb. 27, 1874. The disease commenced immediately after her confinement, and has made very rapid progress. There appeared to be two cysts, from the fact of fluctuation being distinct on each side of but not across the abdomen. The tumour reached above the umbilicus. There were symptoms of the rupture of a cyst and the escape of fluid into the peritoneum. Collapse was sudden, and threatened to be fatal. The aspirator was used two days after, and about ten ounces of clear greenish fluid were drawn off. She died.

There was one large cyst containing fluid similar to that drawn off by the aspirator, and one of half the size containing pus. There were several small cysts with colloid and fluid contents. There was recent lymph in the peritoneum.

The aspirator did not appear to have any particular advantages in this case over the usual method which is adopted in tapping ovarian cysts—viz. by using a fine canula trochar with a long piece of tubing attached. The patient is not moved from the bed, and the escape of the fluid is allowed to continue gradually diminishing for three or four hours.

CASE CIII. *Retained placenta after abortion.*

Æt. 24; March 24, 1874. Three months ago the catamenia ceased; she was treated for this, with the effect of producing sudden hæmorrhage and other symptoms of abortion. She exhibits the condition which usually follows severe hæmorrhage. The uterus is enlarged; the os uteri closed. Pulse quick; temp. 101·8°.

There is a slight discharge of blood from the vagina, and complaint is made of headache. The day following, the os uteri was found to be slightly open, and a solid mass was felt protruding; as no progress was

made in its expulsion, forceps were used, and the substance extracted was found to consist of placenta. The os uteri was dilated considerably, and as much as possible of the substance removed. Frequent injection of warm water and disinfectants was ordered, and continued regularly for several days.

On the 26th there was slight strabismus with headache, followed the next day by partial paralysis of the right side of the body, imperfect articulation, and difficult deglutition. These symptoms increased; she became perfectly unintelligible, and remained almost unconscious for four days, when, to a great extent, she recovered sensation and perception, and the power of movement of the right side. Symptoms of phlebitis of the left leg appeared on the 6th April, and pain was complained of in some of the joints.

April 21. The patient was seen in consultation with Dr. Dickinson, and transferred to his care.

The strabismus had nearly disappeared at this time, but it returned later, and was decidedly marked when she left the Hospital in the middle of May. On the 28th April the paralysis also rather suddenly recurred, but passed off in the course of the two following days. The greatest attention was given to the injection of disinfectants every four hours into the cavity of the uterus for several days after the removal of the placenta.

The four cases mentioned in this Report of retained placenta giving rise to inflammation of the various tissues which are combined in the uterine organs would contribute to the support of the view, that the effects produced by the absorption of the products of decomposing organic matter are somewhat different in intensity, and present greater chronicity, from what is observed in the severe forms of puerperal fever. The symptoms in this class of cases are similar to those which characterise certain cases of carcinoma uteri, and the view that the constitutional symptoms in both instances are due to septic infection is supported by the observation of their diminution while the treatment of frequent disinfectant injections was pursued, and their return on allowing the products of decomposition to remain undisturbed.

CASE CV. *Puerperal abscess.*

Æt. 22; married; April 21. Confined seven weeks ago, and was able to leave her bed nine days after. At the end of three weeks she was attacked with symptoms of inflammation in the right side of the abdomen, and a large abscess has formed in the right iliac fossa. The abscess was opened, and discharged freely for a week, and, gradually diminishing, closed on May 10.

She left the Hospital, May 20, convalescent.



XXII. REPORT OF SURGICAL CASES

ADMITTED DURING THE YEAR 1872.

By J. W. HAWARD.

THE total number of cases admitted during the year 1872 was 2074; of which 1224 were males and 682 females. Among these there occurred 106 deaths—80 males and 26 females; and of this number 14 were brought in dead, or died within twenty-four hours of admission. The rate of mortality therefore was, for males, 6.1 per cent, and for females, 3.5 per cent; or for the whole number, 5.2 per cent.

The mean residence in the Hospital was 31.5 days.

The average number of surgical cases in the Hospital daily throughout the year was 181; males 103, and females 78.

Of injuries there were 566 cases, of which 30 were fatal.

There were 23 cases of *burn*, and 18 of *scald*, making together in this class of injuries 41 cases, of which 4 died.

The cases were of various severity, and in several the healing process was aided by skin-grafting.

Injuries of the Head furnish 118 cases, of which 7 were fatal.

One case entered in this class was proved post mortem to be one of apoplexy:

The man, *æt.* 30, fell from his horse, and when admitted was drowsy, and only partially sensible; pupils equal. Pulse 88, very weak. He was with difficulty roused to answer questions, and then did so incoherently. He avoided the light. He was given beef-tea, and purged with calomel. He remained in the same state for two days; the pulse then became very irregular, but he gradually became more conscious and less drowsy. He then remembered nothing of the fall. He recovered sufficiently to get up and go about the ward, when on the 20th day from admission he was suddenly attacked with convulsions, chiefly of the right limbs, became comatose, and died.

Post mortem the left lateral ventricle was found distended with blood-clot, part of which was recent and part of older date (evidently corresponding to his two attacks). And there was also meningeal hæmorrhage at the base of the brain (see P.M. No. 37).

A youth, æt. 18, was transferred from the medical wards on account of an abscess discharging from a small opening in the right upper eyelid. The neighbouring frontal region was swollen and red; there was internal squint of the left eye, and double vision. He had a rather odd manner, and seemed dull of comprehension, but answered questions rationally. He was said to have been kicked on the head by a horse two years previously, but to have suffered for only three weeks with the pain and swelling of the eyelid. The pulse was very feeble. A poultice was applied to the frontal region, and he was given wine and salines. After a few days he became delirious, and then gradually comatose, and thus died, twenty-three days after admission.

Post mortem (No. 171) there was found a healed fracture of the frontal bone, with caries of the adjacent bone, surrounded by an abscess. There was also pus in the cerebral ventricles, and an abscess in the centre of the left frontal lobe. The right frontal lobe was completely disorganised by suppuration.

Of fractured base there were 2 cases, which both recovered.

There were also 4 cases of compound fracture of the skull, of which 3 were operated upon. The particulars of these will be found in the table of compound fractures.

A girl, æt. 14, was thrown down in the street, and sustained a wound on the right temple. When admitted, on May 23, there was a scalp wound an inch long just above the right eyebrow, by which the bone was exposed and denuded of periosteum. No fracture was discovered. Blood was effused into the eyelids, but not under the conjunctivæ. She was stupid and drowsy, but answered questions rationally. Pulse 80, very feeble; tongue coated. No paralysis. She was purged by calomel and senna. May 24. Stupor had increased, and on 25th she was only roused with much difficulty. The left pupil was dilated, and pulse 100, and very feeble. She was given stimulants, and ice applied to the head. May 28. To the other symptoms were added paralysis of left arm and slight facial palsy. The paralysis increased, and on May 31 Mr. Holmes cut down upon the exposed bone and removed a crown by the trephine. The bone and dura-mater both looked perfectly natural. The dura-mater pulsed, and there was no bulging. From this time she gradually recovered. The temperature in the left axilla was observed to be higher than that in the right by from two to three degrees. After a fortnight this became normal, and on July 10 she was able to leave the Hospital quite well, except that there was still slight loss of power in the left arm.

There were 15 cases of *Injury to the Face*, one of which was fatal. In this case there was extensive comminution of the upper jaw; and as the man had fallen from a height,

there was probably some injury to the brain also. There was no post-mortem examination.

Injuries of the Back include 3 cases of fractured spine. One was in the lower cervical and one in the upper dorsal region; both of these were fatal. The remaining one, a man aged 21, was taken home with paralysis of the lower extremities and sphincters, together with a bed sore on the back.

Of the 4 cases of *Injury of the Neck*, 3 were suicidal. One of these, in a man aged 50, was fatal. The trachea was partially divided, and a good deal of suppuration ensued; the pus making its way into the anterior mediastinum. Death resulted from double pleurisy.

The *Injuries of the Chest* consisted chiefly of fractured ribs and contusion. There were 30 cases, of which only one was fatal.

A man, aged 21 years, was admitted with a pistol-shot-wound of the chest, two inches below the left nipple; there was no aperture of exit. He had pericardial friction and effusion into the left pleura, but made a good recovery. The ball was not extracted.

Of Injuries of the Abdomen there were 15 cases. Two of these were instances of ruptured kidneys, both of which recovered.

A woman, *æt.* 50, fell on leaving a train in motion. She was struck on the abdomen, and fell beneath the carriage, but between the rails; so that, though the train passed over her, she was probably not struck after the first blow. When admitted she was greatly collapsed, and scarcely sensible. There were bruises on the umbilical region and right flank. She rallied after a few hours, and then complained of great abdominal pain. The muscles of the abdomen were hard and contracted, and the pulse very feeble. She had severe vomiting, and could not pass water.

The water was drawn off, and found to contain a large quantity of blood. After a fortnight there was a large quantity of pus in the urine, the blood having diminished. The suppuration continued for about a month, after which she made a good recovery,

The only fatal case in this class was one of a man who was struck by the driving-rod of a locomotive, being

caught between it and the platform. The rod struck him from above downwards on the left buttock, and forced the pubes against the platform. He was admitted in a state of collapse, and when recovered could not pass water. Ruptured urethra being diagnosed, perineal section was performed, and on introducing the finger into the wound a separation of the symphysis pubis was felt, the urethra being torn downwards from the pubic arch. He died on the fourteenth day, and besides the separation of the pubic bones, the sacro-iliac synchondroses were found dislocated.

The *Injuries of the Upper Extremity* were chiefly wounds and compound fractures. The former call for no special notice; an account of the latter will be found in the table of compound fractures.

Injuries of the Lower Extremity. This is the most numerous class of injuries, and includes 312 cases; of these 13 were fatal. The table of compound fractures contains some of the most serious cases, 7 of those that were fatal appearing under that head. A woman, aged 40, fractured both patellæ. She slipped in coming down-stairs, and in recovering her balance felt both patellæ snap, one immediately after the other. She made a good recovery.

Among the dislocations was one of the internal cuneiform bone, the result of a severe twist of the ankle, in a man aged 37. The bone could not be reduced, and was left alone, its displacement causing very little inconvenience, except a prominence on the inner side of the foot.

There was one case only of *Tetanus*.

A man, æt. 45, sustained a compound dislocation of the first phalanx of the right thumb. The displacement was reduced, but was followed by cellulitis of the hand requiring incisions. On the ninth day after the injury there was stiffness of the muscles of the jaw, and on the tenth day he was admitted into the Hospital. He then had well-marked risus sardonicus, and the teeth could not be separated. Pulse 110, weak. Breath very foul. There was no spasm of the muscles of the neck. He had an incoherent manner. The hand was poulticed, and he was given brandy and beef-tea, and subcutaneous atropine injection. On the twelfth day he had an attack of opisthotonos, after which he breathed

laboriously, till an hour afterwards a second attack occurred, accompanied by spasm of the glottis, in which (although the house-surgeon immediately opened the larynx) he died. Post mortem the membranes of the cord were found much congested. The aorta was very atheromatous; the liver cirrhotic and the kidneys granular. The examination was unavoidably delayed till eighty hours after death, so that no microscopical examination of the cord was possible.

Diseases of the Organs of Motion. This class includes numerous cases of disease of the bones and joints, many of which appear in the tables of operation.

A boy, *æt.* 13, was admitted with a painful swelling of the left femur of two months' duration. He had been an athletic boy, and was in good health till the appearance of the swelling, since which he had lost flesh; had a good family history. He was given iodide of potassium, but the tumour steadily increased. The limb was removed at the hip-joint, and he made a good recovery. The disease was found to be periosteal cancer. (See specimen, *ser. ii.* 240a.) He was subsequently seen (1873) with fracture of the right femur, and symptoms of malignant disease of that bone, and with these he died at home.

A man, *æt.* 21, was admitted with malignant disease of the femur, noticed about three months, and rapidly increasing. The limb was removed at the hip-joint. He died with sarcomatous tumours in the lungs, pleuræ, and pericardium. (See the specimens in the Museum.)

A woman, *æt.* 39, was admitted with malignant disease of the tibia, but she declined amputation, and therefore left the Hospital without treatment.

A man, *æt.* 26, was admitted on account of a subcutaneous tumour just above the right nipple. It was dissected out, and found to be a suppurating (probably hydatid) cyst imbedded in the pectoral muscle. He made a good recovery.

A child, *æt.* 10 months, was brought to the Hospital with a swelling of the left thigh, closely simulating malignant disease. The swelling was of three weeks' duration. No injury was known; the child had lost flesh and colour. When admitted the child was moderately well nourished; very pale; the fontanelle depressed; pulse feeble; no fever. The left thigh was much swollen, especially over the outer side of the upper third, where the swelling was elastic and prominent. There were large veins traversing its surface. The swelling extended under Poupart's ligament into the pelvis, where a somewhat defined tumour could be felt. The case was watched for a few days, and then a puncture revealed a large periosteal abscess, which being opened, the child was soon well. It was notable that so large and rapid a formation of matter should have taken place with an entire absence of fever.

Diseases of the Organs of Circulation. There were four cases of aneurism, one of which is the case of aneurism of

the superior mesenteric artery mentioned in the last volume of these *Reports*.

The patient, a painter, æt. 39, had a movable pulsating tumour the size of an orange, to be felt in the abdomen a little to the left of the umbilicus. Pressure was made upon the abdominal aorta during anæsthesia on two occasions, and subsequently more moderate pressure was kept up at intervals by a weight and tourniquet. He went home with a good deal of solidification of the tumour, which, however, still pulsated forcibly. Nov. 20, 1872, he was readmitted into the Hospital. He had much emaciated, and was unable to work. The tumour had greatly increased, and now extended from the margin of the left ribs to three inches below the umbilicus, and laterally from one inch to the right to three inches to the left of, and on a level with, the umbilicus. He was kept at rest in bed and given good diet (he had been involuntarily upon a low diet while at home, for lack of means to obtain a better). He remained without notable change till Dec. 20, when he rose from bed to obtain some water. On returning to bed he suddenly complained of pain in the abdomen, and immediately died.

Post mortem the heart was found to be fatty, and the aorta and coronary arteries atheromatous.

The kidneys were granular, with adherent capsules and diminished cortices.

On the anterior surface of the left kidney, about its centre, and beneath its capsule, was a round tumour the size of a marble, containing stringy purulent matter, such as might result from the breaking down of a cyst. It had caused a corresponding depression on the surface of the organ. (This was doubtless an injury to the kidney from the abdominal tourniquet.)

The aneurism was of the superior mesenteric artery; it was fusiform in shape, and six inches long. It involved the aortic opening of the artery which formed part of the sac, and the branches of the artery were given off from the end of the sac. The dilated aorta just behind the sac had given way, and allowed the fatal extravasation of blood into the abdomen. The hepatic and other branches from the adjacent part of the aorta were atheromatous. The sac of the aneurism was nearly filled with laminated clot, there being only a small channel left through its centre, through which the blood still flowed. For further particulars of this case see *Transactions of Clinical Society*, vol. vii. p. 58. The specimen is in the Museum of the Hospital, ser. vi. 115a.

A traumatic aneurism of the ulnar artery, in a man æt. 29, was treated, firstly, by flexion of the forearm; secondly, by a tourniquet on the brachial artery; thirdly, by pressure upon the tumour; fourthly, by galvano-puncture; and, finally and successfully, by laying open the sac and tying both ends of the artery.

The remaining two cases were popliteal aneurisms.

One, a man, æt. 38, had noticed a pulsating tumour in the ham for three weeks. He was aware of no injury, and had a healthy aspect.

The tumour was the size of a hen's egg, and felt as though it contained some solid clot. A cure was produced in twelve days by flexion.

A man, æt. 28, was admitted with popliteal aneurism of six months' duration, evidently traceable to injury of the artery while running at cricket. He had had syphilis twelve years previously, but otherwise good health. His family history was good. He had a healthy aspect, and no discoverable disease of any other part of the vascular system. The tumour, which was of the size of a hen's egg, pulsated in the right ham. The pulse in the posterior tibial artery was felt faintly at the ankle.

A tourniquet was placed upon the femoral artery, but he could not bear the pressure more than half an hour; neither would he allow forcible flexion. He was therefore directed to keep the limb flexed as far as possible without having it bandaged. This produced a cure in two days.

There was also a fatal case of gangrene of the lower limb in a woman aged 47.

She had gray hair, and looked much older than she was. She had suffered pain in the limb for four weeks, and the gangrene had been slowly progressing for three weeks. When admitted there was gangrene of the right foot and a mottled appearance of the whole leg, which was cold. The popliteal artery was indistinctly felt. The internal saphena vein was blocked. After a few days, as the gangrene did not spread, the limb was amputated in the middle third of the thigh. All the main vessels, both arteries and veins, were blocked, but a few enlarged muscular branches bled. (See specimen, ser. vi. 282.) She progressed fairly for a few days, but there was not much action about the stump; the discharge became thin and scanty; a bed-sore formed over the sacrum, which rapidly spread and deepened, and she died exhausted.

Post mortem there was found no repair of the stump. A partially-decolorised coagulum filled the right femoral and common iliac veins, and about two inches and a half of the vena cava; the termination of the clot in the last-named vessel being dark coloured and of recent formation. A similar coagulum, but less decolorised, occupied the left common iliac and femoral veins as far as the apex of Scarpa's triangle. The corresponding arteries were thickened with atheroma. The aorta was also very atheromatous. The muscular walls of the heart were pale and soft—the valves natural. The kidneys were finely granular.

There was also a fatal case of senile gangrene in a man aged 84.

Among the *Diseases of the Respiratory Organs* was the case of a child, aged $2\frac{1}{2}$ years, whose trachea had been opened in consequence of an obstruction by a piece of pudding. A catheter had been introduced into the trachea to maintain the opening. When admitted to the Hospital the

child was breathing very imperfectly, but was relieved on the introduction of a larger tube. Pneumonia, however, soon proved fatal.

Diseases of the Skin. This class includes two fatal cases of cancer of the skin; one of these occurred in a man, aged 45, the greater part of whose left thigh was covered by an ulcerated epithelial growth. He died of pneumonia. There was no secondary cancerous growth.

The second case was a man, aged 56, who had numerous prominent nodules of scirrhus cancer in the skin of the right lower limb, some of which were ulcerated. He died with cancerous growths in the pleuræ, lungs, pericardium, heart, liver, spleen, kidneys, supra-renal body, and lymphatic glands.

Two instances of chancre on the eyelid were seen; one in a girl, aged 10 years, in whom a well-marked secondary eruption occurred, and a cure was obtained by mercury. The other was in a boy aged 12 years. The sore was of characteristic appearance, but the child was removed by the parents before treatment had produced any effect. In neither could the mode of origin be traced.

A man, æt. 64, was admitted with an ulcerated epithelial growth on the scalp, which had recurred after removal seven months previously. The growth was removed by the knife. On the seventh day from the operation he had rigors, and became drowsy. Coma ensued, and he died on the eleventh day.

Post mortem pus was found between the dura-mater and bone, and over the left hemisphere of the brain.

Diseases of the Organs of Digestion. Among these was a case of fæcal fistula in the left groin. The subject was a woman, aged 49 years, with phthisical aspect and symptoms. She left the Hospital with the sinus still discharging, and with a dressing of oakum upon the opening.

A case of cancer of the tongue was admitted, but was too far advanced to admit of operative treatment. The patient was a woman aged 33, whose mother died of cancer of the uterus.

A man, æt. 60, was admitted for cancer of the œsophagus. For six months he had had increasing difficulty of swallowing, so that for three months past he had not swallowed anything solid. He had otherwise enjoyed good health. Family history good.

The patient on admission was a very much emaciated, but otherwise healthy-looking old man, he could not swallow any solid food, but said it seemed to stop at the top of the gullet. He had a hoarse voice and cough. There were slightly-enlarged glands at the left side of the neck, and after a few days a diffused swelling occurred on that side of the neck. He remained in this state, feeding on beef-tea, arrowroot, brandy, and milk, till eight days after admission, when he died rather suddenly.

Post-mortem.—About two inches and a half of the upper end of the œsophagus were affected by epithelioma, the growth of which almost entirely obstructed the channel of the tube. The growth was ulcerated, and at the left side of the gullet was a perforation, which had led to diffuse suppuration and sloughing of the connective tissue of that side of the neck. (See specimen, ser. ix. 80a.)

A man, æt. 49, was admitted with sudden intestinal obstruction of six days' duration. Nothing could be felt by the finger or tube passed into the bowel. He had been given purgatives, which he vomited. He was treated by opium and enemata, but died on the tenth day of the obstruction.

Post mortem there was found a diverticulum two inches and a half long, connected with the lower part of the ileum, and from which there passed to the mesentery firm fibrous bands of adhesion; one of which was the cause of the fatal obstruction. (See specimen, ser. ix. 153d.)

For the cases of strangulated hernia, see the special table.

Diseases of the Urinary Organs. The cases of stone in the bladder will be found described in the table of operations for stone. One case of stone in the urethra was admitted, a child, aged 3 years, from whom the house-surgeon removed the calculus by forceps.

Three cases of scrofulous disease of the urinary tract were admitted: a boy, aged 14 years, in whom the disease had existed ten months; a man, aged 25 years, who had suffered for nine months; and a boy, aged 5 years, in whom the symptoms were of two years' duration. The younger child went out quite well. The other two patients were improved by treatment.

A man, æt. 21, was admitted with a history of an injury to the abdomen, by a horse falling on him four months previously. For six weeks he had suffered pain in lumbar region and occasional hæmaturia. On examination, the urine was found to contain a large quantity of blood and some lithates. There was decided tenderness of the left kidney on pressure between the hands. He was transferred to the medical ward.

He gradually emaciated; the hæmaturia and pain increased; and he

died two months after admission. Cancer of the left kidney and of the peritoneum was found post mortem.

The *Diseases of the Male Organs of Generation* included a case of melanotic sarcoma of the penis in a man aged 52. The disease had existed eight years, and for a year had been ulcerated—it extended about one inch and a half along the urethra from the meatus. The anterior third of the organ was amputated, and the part healed well.

Diseases of the Female Organs of Generation. In this class are thirteen cases of malignant mammary tumours, of which eleven were operated upon. A case of ovarian tumour was operated upon, and will be found in the appropriate table. A second case of ovarian tumour proved fatal by the escape of the colloid matter into the peritoneal cavity after tapping.

Table of Surgical Cases admitted during the Year 1872.

Nature of injury.	1872.			
	Total number of admissions.	Total number of deaths.	Complicated with other disease or injury.	Operations.
A. General injuries:				
a. Burns	23	3	1	1
b. Scalds	18	1		
B. Local injuries:				
1. Of the head:				
a. Scalp-wounds	68	1	9	
b. Scalp-wounds exposing bone	12	1		
c. Concussion	25	2	2	
d. Fracture of the skull				
e. Compound "	4	2	1	3
f. Fracture of base "	2			
g. Contusion	7	1		
2. Of the face:				
a. Fracture of the lower jaw	1			
b. Fracture of the bones of face	1	1		
c. Contusions of face	4			
d. Wounds of face	9			
3. Of the back:				
a. Fractured spine	3	2		
b. Sprains and contusions	14			
4. Of the neck:				
a. Wounds	3	1		
b. Contusions	1			
5. Of the chest:				
a. Fractured ribs	17	1	3	
b. Contusions	11		1	
c. Wound of parietes				
d. Wound of lung	2			
e. Fractured sternum				
6. Of the abdomen:				
a. Contusions	5			
b. Injuries of scrotum or penis	3			
c. Injuries of labium	3			
d. Ruptured viscus	2			1
e. Fractured pelvis	1	1		
7. Of the upper extremity:				
a. Contusions	3			
b. Wounds of arm	5			
c. " forearm	3	1	1	1
d. " hand	4			

Nature of disease.	1872.			
	Total number of admissions.	Total number of deaths.	Complicated with other disease or injury.	Operations.
7. Of the upper extremity— <i>continued</i> .				
e. Fractured clavicle	1			
f. " humerus	4		2	
g. " forearm	7		2	
h. Compound fractures	2			1
i. Dislocated shoulder	3		1	
k. " elbow				
8. Of the lower extremity :				
a. Contusions	62	1	2	1
b. Wounds of thigh	1			
c. " leg	9		1	
d. " foot	5			
e. Fractured femur	38	1	4	
f. " neck of femur	4			
g. Fractured tibia	27			
h. " fibula	21		2	2
i. " patella	9			
k. " leg	47	4	3	1
l. " foot	2			
m. Ununited fracture	1			
n. Compound "	19	7	5	7
o. Dislocated hip				
p. " patella				
q. " ankle	2			
r. " knee	1			
s. Sprained hip				
t. " knee	8			
u. " ankle	56		1	
v. Gunshot wound				
C. General diseases :				
a. Erysipelas	5			
b. Diffuse cellulitis	13	1		
c. Sloughing	8	2		2
d. Gangrene	1	1		
e. Tetanus	1	1		
f. Pyæmia				
D. Local diseases :				
1. Of the organs of motion :				
a. Necrosis	27	2		22
b. Caries of bone and joint	82	2	1	19
c. Diseased spine	25	4	3	1
d. Tumours of bone	13	8		9
e. Rickets	3			
f. Periostitis	30	1		2
g. Synovitis	45			
h. Ulceration of cartilages	13	1		6
i. Abscess in joint				
k. Hysterical pain in joint	12			
l. Ankylosis	8			3
m. Rheumatism	1			
n. Loose cartilage				

Nature of disease.	1872.			
	Total number of admissions.	Total number of deaths.	Complicated with other diseases or injury.	Operations.
1. Of the organs of motion— <i>continued</i> .				
<i>a.</i> Inflamed bursa patellæ	17	.	.	1
<i>p.</i> " other bursa	2	.	.	
<i>q.</i> Bursal tumour	2	.	.	
<i>r.</i> Thecal abscess	15	.	.	18
<i>s.</i> Contracted tendon	16	1	.	
<i>t.</i> Abscess				
2. Of the organs of circulation :				
<i>a.</i> Disease of heart	1	.	.	
<i>b.</i> Aneurism	4	1	.	1
<i>c.</i> Nævus	4	.	.	
<i>d.</i> Varicose veins	14	.	.	11
<i>e.</i> Phlebitis	7	.	.	
<i>f.</i> Inflamed absorbents	1	.	.	
<i>g.</i> Hypertrophy of glands	20	1	2	
<i>h.</i> Tumour of gland	2	.	.	
3. Of the organs of respiration :				
<i>a.</i> Disease of larynx	1	1	.	
4. Of the nervous system :				
<i>a.</i> Meningitis	1	.	.	
<i>b.</i> Delirium tremens	8	1	.	
<i>c.</i> Paralysis	1	.	.	
<i>d.</i> Sciatica				
<i>e.</i> Neuralgia				
<i>f.</i> Hysteria				
<i>g.</i> Apoplexy				
5. Of the skin and appendages :				
<i>a.</i> Eczema	25	.	1	
<i>b.</i> Rupia	8	.	.	
<i>c.</i> Psoriasis	8	.	.	
<i>d.</i> Impetigo	2	.	.	
<i>e.</i> Lupus	2	.	.	
<i>f.</i> Purpura	1	.	.	
<i>g.</i> Erythema				
<i>h.</i> Ulcer	103	4	3	7
<i>i.</i> Abscess	12	.	.	
<i>k.</i> Cancerous ulcers	2	1	.	1
<i>l.</i> Fatty tumour	6	.	1	6
<i>m.</i> Sebaceous "	2	.	.	2
<i>n.</i> Encysted "	4	.	.	3
<i>o.</i> Malignant "	6	1	1	4
<i>p.</i> Fibrous "	1	.	.	1
<i>q.</i> Carbuncle	4	1	.	
<i>r.</i> Boil	8	.	.	
<i>s.</i> Edema				
<i>t.</i> Ulcer of stump	4	.	.	2
<i>u.</i> Contracted cicatrix	1	.	.	
<i>v.</i> Onychia	4	.	.	
6. Of the eye, ear, and nose :				
<i>a.</i> Conjunctivitis	15	.	.	
<i>b.</i> Corneitis	49	.	.	2

Nature of disease.	1872.			
	Total number of admissions.	Total number of deaths.	Complicated with other disease or injury.	Operations.
6. Of the eye, ear, and nose— <i>continued</i> .				
c. Scleratitis	14	.	.	1
d. Iritis	49	.	.	48
e. Cataract	45	.	.	34
f. Glaucoma	6	.	.	
g. Granular lids	2	.	.	2
h. Abscess in sac	1	.	.	1
i. Entropion	1	.	.	1
j. Strabismus	1	.	.	
k. Ectropion	1	.	.	1
l. Polypus	1	.	.	
7. Of the organs of digestion :				
a. Sore throat	6	.	.	
b. Ulceration of mucous membrane	2	.	1	
c. Cleft palate	8	.	.	8
d. Harelip . . . . .		.	.
e. Enlarged tonsils . . . . .		.	.
f. Cancer of tongue	1	.	.	
g. Strangulated hernia	9	5	.	9
h. Reducible "	6	.	.	
i. Irreducible "	2	.	.	
j. Peritonitis . . . . .		.	.
k. Fæcal abscess	2	.	.	
l. Ulcer of rectum . . . . .		.	.
m. Fistula in ano	18	1	.	18
n. Piles	13	.	.	11
o. Stricture of rectum	4	.	.	
p. Prolapsus ani	1	.	.	
q. Ulceration of gut . . . . .		.	.
r. Cancer of rectum	1	.	.	
s. " œsophagus	1	1	.	
t. Fissure of rectum	5	.	.	5
u. Internal strangulation	1	1	.	
v. Constipation	5	1	.	
8. Of the urinary organs :				
a. Albuminuria	1	.	.	
b. Irritable bladder	8	.	.	
c. Inflamed "	10	1	.	
d. Hæmaturia	1	1	.	
e. Incontinence of urine . . . . .		.	.
f. Stone	6	2	.	6
g. Stricture	20	5	.	4
h. Perineal fistula	2	.	.	
i. Enlarged prostate	2	1	.	
j. Extravasation of urine . . . . .		.	.
k. Cancer of bladder . . . . .		.	.
l. Recto-urethral fistula . . . . .		.	.
m. Pyelitis . . . . .		.	.
n. Extroversion of bladder	2	.	.	
9. Of the male organs of generation :				
a. Syphilis	8	.	.	

Nature of disease.	1872.			
	Total number of admissions.	Total number of deaths.	Complicated with other disease or injury.	Operations.
9. Of the male organs of generation— <i>continued</i> .				
<i>b.</i> Secondaries	7			
<i>c.</i> Gonorrhoea	2			
<i>d.</i> Phimosis	4	1	1	3
<i>e.</i> Paraphimosis				
<i>f.</i> Bubo				
<i>g.</i> Hydrocele	18			11
<i>h.</i> Hæmatocele				
<i>i.</i> Orchitis	10			
<i>j.</i> Varicocele	7			6
<i>k.</i> Scrofulous testis	1			1
<i>l.</i> Cancer of penis	1			1
10. Of the female organs of generation :				
<i>a.</i> Abscess of breast	4			
<i>b.</i> Milk-abscess				
<i>c.</i> Chronic mammary tumour	2			2
<i>d.</i> Sero-cystic ditto				
<i>e.</i> Malignant „	13	2		11
<i>f.</i> Gonorrhoea	1			
<i>g.</i> Syphilis	1			
<i>h.</i> Secondaries				
<i>i.</i> Vesico-vaginal fistula	2			2
<i>j.</i> Leucorrhoea	1			
<i>k.</i> Ovarian tumour				
<i>l.</i> Prolapsus uteri				
<i>m.</i> Abortion				
<i>n.</i> Ruptured perinæum				
11. Of the blood-glands :				
<i>a.</i> Goitre				

Table of Compound Fractures—1872.

No.	Name, age, No. in Register, surgeon.	Occupation and habits.	Limb.	Nature of accident.	State of fracture.	Treatment and result.	Remarks.
1.	Charles J. Aged 32. (176, Hol.)	Groom. Temper- ate.	Right leg.	Kicked by a horse.	Contused wound $\frac{1}{2}$ inch long on inner side of middle of shaft of right tibia, which was here fractured; fibula in- tact; some hemor- rhage.	Assalini's box; charpie to wound. Recov- ered, 59 days.	
2.	Charles H. Aged 48. (207, H.)	Carman. Temper- ate.	Right leg.	Thrown off a wagon; fell foot twisted under him.	Both bones broken 3 inches above ankle; inversion of foot; lower end of upper fragment of fibula projecting through skin, the wound in which is 1 inch long.	Displacement reduced under chloroform. Assalini's box; dry lint to wound. Se- condary am- putation. Re- covered, 110 days.	Vide Amputation, no. 12.

3.	Joseph S. Aged 17. (221, H.)	Railway porter. Tempor- sta.	Left leg and skull.	Wheels of rail- way-carriage passed over legs, and struck head.	Left leg crushed below knee; the soft parts stripped off front of lower two-thirds of thigh; muscles at back of thigh much bruised; right leg nearly torn off at knee-joint; as- sure of skull left frontal region, over which a contused scalp wound.	Primary ampu- tation of both thighs; water- dressing to skull; stimu- lants. Died, 11 days.	The left stump sloughed exten- sively, and secondary hemor- rhage occurred on the 10th day, and was the immediate cause of death. Vide Amputation, no. 5.
4.	Henry G. Aged 44. (242, P.)	Labourer. Drinks a good deal.	Left leg.	Pushed down, with his leg bent under him.	Fracture of both bones in middle, the sharp end of upper fragment protruding and mak- ing a hole in the skin $\frac{1}{4}$ inch long.	Assalini's box; Lister's dress- ing. Recovered, 56 days.	
5.	George S. Aged 18. (260, P.)	Sawyer. Tempor- sta.	Left patella.	Knee cut by a circular saw.	A wound 4 inches long, longitudinally opening the knee, cutting the patella in two and grooving the left con- dyle of femur.	Assalini's box; Lister's dress- ing to wound. Recovered, 137 days.	With ankylosis of knee.
6.	John L. Aged 20. (305, L.)	Labourer. Tempor- sta.	Right leg.	Fell about 8 feet off a tree.	Fracture of both bones 3 inches above ankle, and dislocation of foot inwards, the upper fragment of fibula projecting through a wound 1 inch long.	Assalini's box; carbolic oil to wound. Re- covered, 106 days.	
7.	George F. Aged 35. (371, H.)	Railway- guard. Tempor- sta.	Left leg.	Wheels of lo- comotive passed over leg.	Limb completely crushed as far as knee.	Primary ampu- tation. Died same day.	Vide Amputation, no. 9.

No.	Name, age, No. in Register, surgeon.	Occupation and habits.	Limb.	Nature of accident.	State of fracture.	Treatment and result.	Remarks.
8.	William D. Aged 19. (408, P.)	Labourer. Temper- ate.	Left leg.	A sack of corn fell on him, and threw him down with leg bent under him.	Fracture at junction of upper and middle third of tibia, the upper fragment protruding through a small wound on inner side of leg.	Assalini's box; dry lint to wound. Re- covered, 36 days.	
9.	William M. Aged 44. (436, L.)	Brick- maker. Temper- ate.	Right leg.	A mass of clay fell upon him, and threw him down with leg bent under him.	Fracture in middle of tibia, the upper end of lower fragment pro- jecting through a small wound on front of leg.	Assalini's box; dry lint to wound. Re- covered, 41 days.	
10.	Henry M. Aged 20. (438, L.)	Railway- guard. Temper- ate.	Right leg and wrist.	Wheels of rail- way-carriage passed over leg and hand.	Right leg; the bones comminuted and limb much crushed; toes blue and cold; a con- tused wound 2 inches long over inner side of lower end of tibia, and a small wound at outer side of calf, from both of which venous ooze- ling; right wrist lacer- ated; carpal joints opened; bones crushed and skin torn back; ulnar artery and a re- dial branch divided.	Amputation of thigh and fore- arm 24 hours after the in- jury. Died, 24 days.	Vide Amputation, no. 10. When admitted he was suffering also from concussion, and it was not until next day that he had sufficiently rallied to admit of amputation.

11.	James F. Aged 84. (446, L.)	Temper- ate.	Right thigh.	Knocked down by a carriage.	Oblique fracture in mid- dle of femur; a good deal of bruising, lower fragment protruding and causing a wound $\frac{1}{4}$ inch long on front of thigh.	Dry lint to wound. Earle's bedstead. Died, 26 days.	Suppuration and exhaustion. No post-mortem examination.
12.	Charles S. Aged 40. (440, L.)	Labourer. Temper- ate.	Left elbow.	Fell 12 feet off a scaf- fold.	The two condyles of hu- merus split apart, and separated from shaft by a T-shaped fracture; a wound $\frac{1}{4}$ inch long over back of joint.	Rectangular splint. Reco- vered, 29 days.	
13.	Robert S. Aged 29. (493, H.)	Gentle- man. Temper- ate.	Right leg.	Thrown from a horse.	Fracture in two places of both bones in middle third; a small wound from which some hæ- morrhage.	Assalini's box; lint to wound. Recovered, 82 days.	When discharged from Hospital there seemed firm union, but there was some necrosed bone to separate. $1\frac{1}{2}$ inch shortening.
14.	Frederick A. Aged 48. (531, P.)	Plasterer. Drinks beer and gin.	Right leg.	Fell from a window 8 feet and struck leg against an iron bar.	Fracture of both bones, junction of upper and middle thirds; a small wound in front.	Assalini's box; dry lint to wound. Reco- vered, 87 days.	No suppuration.
15.	Alice H. Aged 5. (553, P.)	A healthy child.	Skull.	Fell off a horse.	A triangular wound on posterior parietal re- gion, exposing a com- minuted fracture of skull; several frag- ments depressed.	Loose fragments removed. Died, 3 days.	No post-mortem examination.

No.	Name, age, No. in Register, and surgeon.	Occupation and habits.	Limb.	Nature of accident.	State of fracture.	Treatment and result.	Remarks.
16.	William E. Aged 42. (741, L.)	French-polisher. Drunkard.	Left femur.	Fell 15 feet off a ladder.	Fracture just above condyles, the upper fragment projecting through wound in front; lower fragment split into joint.	Long fracture box. Died, 3 days.	From delirium tremens. No post-mortem examination.
17.	Thomas S. Aged 46. (868, P.)	Labourer. Temperate.	Skull.	Fell 25 feet off a scaffold.	Wound 1½ inches long on left frontal region, exposing linear fracture.	Water-dressing to wound. Recovered, 50 days.	
18.	George L. Aged 80. (908, L.)	Labourer. Temperate.	Right forearm.	Limb caught in machinery.	Forearm crushed to level of elbow.	Primary amputation. Recovered, 25 days.	Vide Amputation, no. 18.
19.	William C. Aged 29. (936, Hol.)	Labourer. Intemperate.	Right leg.	Foot twisted in a struggle.	Fracture of both bones, junction of lower and middle third, and into ankle; wound 1½ inches long.	Assalini's box; dry lint to wound; incisions; stimulants. Died.	Suppuration. Pyæmia. Vide P.M. no. 164.
20.	James D. Aged 21. (985, Hol.)	Railway-porter. Temperate.	Right leg.	Run over by a train.	The leg almost severed above knee.	Primary amputation. Died, 6 hours.	Vide Amputation, no. 19. No post-mortem examination.
21.	Robert B. Aged 28. (960, H.)	Railway-porter. Temperate.	Left leg.	Run over by a train.	Left leg crushed; posterior tibial artery torn, and soft parts bruised to above knee.	Primary amputation. Recovered, 63 days.	Vide Amputation, no. 20.

22.	Benjamin B. Aged 18. (1076, Hol.)	Left leg.	A girder fell upon him.	A large wound across leg just below knee, from which protrudes the splintered tibia; free hemorrhage. There was also simple frac- ture of left arm and right leg.	Primary ampu- tation. Reco- vered, 84 days.	Vide Amputation, no. 21.
23.	Josiah C. Aged 18. (1261, H.)	Skull.	An iron wedge thrown out from a ma- chine struck him on the head.	A triangular contused wound, with depressed starred fracture, 1½ inches above left brow.	Trephining; re- moval of de- pressed bone. Recovered, 32 days.	
24.	John M. Aged 33. (1406, H.)	Right leg.	Fell off a cab.	Fracture of both bones in middle; wound 1½ inches long.	Assalini's box; carbolic lotion. Recovered, 64 days.	

Summary of Compound Fractures.

Total number of cases, 24; of which 8 died.

Thigh	2 cases, of which 2 died.	Arm	1 case.
Leg*	16 "	Forearm	1 "
Patella	1 case.	Skull†	4 cases, of which 2 died.

* One of these had also compound fracture of skull.

† One of these had also compound fracture of leg.

Table of Cases of Amputation—1872.

No.	Name, age, No. in Register, surgeon.	Occupation.	Limb amputated, and kind of amputation.	Why amputated.	Result.	Remarks.
1.	Noah S. Aged 30. (389, L.) 1871 Reg.	Porter.	Left thigh, lower third; flap.	Ulceration of knee-joint.	Recovered, 137 days.	A good stump.
2.	Edith Mao G. Aged 12. (922, Hol.) 1871 Reg.	—	Left thigh, middle; flap.	Failure of excision of knee for caries of joint.	Recovered, 38 days.	A good stump.
3.	Thomas B. Aged 20. (1580, P.) 1871 Reg.	Shoemaker.	Left thigh, middle; flap.	Failure of excision of knee-joint for chronic joint-disease.	Died, 9 days.	Exhaustion. Lardaceous disease. Vide P. M. no. 33.
4.	William W. Aged 68. (128, L.)	Clerk.	Left leg, lower third; flap.	Senile gangrene of foot.	Died, 9 days.	Atheroma; sloughing; exhaustion. Vide P. M. no. 36.
5.	Joseph S. Aged 17. (221, H.)	Railway-porter.	Thighs. Right, lower third; circular. Left, upper third; flap.	Compound dislocation of right leg at knee; compound fracture of left leg below knee; soft parts stripped off thigh.	Died, 11 days.	Vide Comp. Fract. no. 3. The left stump sloughed extensively, and secondary hemorrhage occurred on the 11th day, which was the immediate cause of death. No post-mortem exam.

TABLE OF AMPUTATIONS.

299

6.	Jane B. Aged 47. (204, H.)	Married.	Right thigh, middle; circular.	Gangrene of leg.	Died, 28 days.	There was but little reparative action about stump, and she gradually sank with large and deep bed-sores. Vide P.M. no. 53.
7.	William M. Aged 32. (327, Hol.)	Grocer.	Left forearm, lower third; flap.	Gangrene of hand from wound of the main arteries and nerves.	Died, 28 days.	The wound occurred 6 days before admission. He died with evident symptoms of pyæmia, but without obvious secondary deposits. The stump had in great part healed, but a little foul suppuration still continued round the ends of the bones. There was no osteomyelitis nor blocking of veins. The arteries were natural and closed; but of the ligatures, which were of carbolised catgut, no trace remained. No part of the body excepting the stump was examined.
8.	Mary W. Aged 45. (329, Hol.)	Married.	Right thigh, lower third; modified flap- amputation.	Old destruction of knee-joint with great displacement.	Recovered, 53 days.	A good stump.

No.	Name, age, No. in Register, surgeon.	Occupation.	Limb amputated, and kind of amputation.	Why amputated.	Result.	Remarks.
9.	George F. Aged 36. (371, R.)	Railway-guard.	Left thigh, lower third; circular.	Crushed leg; compound comminuted fracture.	Died, same day.	He was much depressed by the injury, and did not rally after the amputation. Vide Comp. Fract. no. 7. Vide P.M. no. 55.
10.	Henry M. Aged 20. (488, R.)	Railway-guard.	Right thigh through knee, by long anterior flap. Right forearm, lower third; flap.	Compound comminuted fracture of leg and wrist.	Died, 24 days.	He had severe traumatic delirium, and died of exhaustion. Vide Comp. Fract. no. 10. Vide P.M. no. 89.
11.	John P. Aged 4. (9, Hol.)	—	Right thigh at hip-joint; flap.	Suppurative exhaustion and necrosis of the femur, after excision of head of femur for caries.	Died, 6 hours.	Syncope after operation. He was in a very exhausted state previously. Vide P.M. no. 88.
12.	Charles H. Aged 48. (207, H.)	Carman.	Right leg, upper third; circular.	Suppuration after compound fracture.	Recovered, 90 days.	Healed by granulation. A good stump. Vide Comp. Fract. no. 2.
13.	Edmund G. Aged 49. (486, H.)	Labourer.	Right thigh, lower third; circular.	Ankylosis of knee in flexed position.	Died, 10 days.	From secondary hemorrhage on 10th day Athetosis. Vide P.M. no. 99.
14.	James B. Aged 5. (278, L.)	—	Right thigh, lower third; flap.	Caries of knee-joint and abscess of femur.	Recovered, 27 days.	A good stump.

15.	Matilda C. Aged 88. (641, H.)	Married.	Right arm; circular.	Cancer of forearm.	Died, 98 days.	The stump healed well, but she died of cancer of axillary glands and pericardium, with final pericarditis. Vide P.M. no. 192. A useful stump.
16.	Mary C. Aged 80. (756, Hol.)	Married.	Left forearm; flap.	Caries of carpus.	Recovered, 26 days.	
17.	Joseph C. Aged 57. (427, L.)	Lodging-house keeper.	Left leg, lower third; flap.	Caries of ankle-joint.	Died, 5 days.	Gangrene of flap; pyæmia. Vide P.M. no. 141.
18.	George L. Aged 80. (903, L.)	Labourer.	Right arm, lower third; circular.	Crushed forearm.	Recovered, 25 days.	A useful stump. Vide Comp. Fract. no. 18.
19.	James D. Aged 21. (335, Pl.)	Railway porter.	Right thigh, lower third; circular.	Crushed leg.	Died, 6 hours.	From shock. Vide Comp. Fract. no. 20. No post-mortem exam.
20.	Robert B. Aged 20. (950, R.)	Railway porter.	Left thigh, lower third; flap.	Crushed leg.	Recovered, 63 days.	Vide Comp. Fract. no. 21.
21.	Benjamin B. Aged 18. (1076, Hol.)	Labourer.	Left thigh, through knee; flaps.	Crushed leg.	Recovered, 84 days.	Vide Comp. Fract. no. 22.
22.	Joseph W. Aged 14. (996, P.)	Newboy.	Right leg; flap.	Ulceration of stump.	Recovered, 28 days.	Vide no. 25 (1871).
23.	Annie R. Aged 19. (1138, L.)	Servant.	Right thigh, through condyles of femur.	Ulceration of stump, caries of femur, and abscess in patella.	Recovered, 43 days.	Vide no. 7 (1871). Specimen, ser. iii. 74a.
24.	Frank H. Aged 2. (1658, Hol.)	—	Right thigh, lower third; flap.	Crushed leg.	Recovered, 29 days.	

Table of Cases of Strangulated Hernia—1872.

No.	Name, age, No. in Register, surgeon.	Occupation.	Nature and duration of hernia; whether truss worn.	Nature of operation and contents of sac, if opened.	Result, and at what period.	Remarks.
1.	Lavinia F. Aged 40. (6, L.)	Married.	Right femoral, 2 weeks. No truss worn. Strangulated, 3 days (†).	Sac opened, and found empty.	Recovered, 29 days.	There were some inflamed glands in front of the hernial sac.
2.	Mary A. T. Aged 34. (866, L.)	Nurse.	Right femoral, 14 years. No truss worn. Strangulated, 24 hours.	Sac opened; contained a knuckle of congested small intestine.	Recovered, 19 days.	
3.	Elisabeth R. Aged 56. (1127, H.)	Married.	Left inguinal, 14 years. No truss worn. Strangulated, 2 days.	Sac opened; contained a knuckle of congested small intestine.	Died, 1 day.	Commencing peritonitis. Vide P.M. no. 177.

No.	Name, Age, No. in Register, surgeon.	Occupation.	Nature and duration of hernia; whether truss worn.	Nature of operation and contents of sac, if opened.	Result, and at what period.	Remarks.
4.	William P. Aged 55. (1166, P.)	Coachman.	Double scrotal, 18 years. No truss worn. Strangulated, 5 days.	Left sac opened; contained several feet of much congested small intestine.	Died, 1 day.	There was no stricture, the obstruction being from the weight of the hernia. The gut was much weakened by distension. The scrotum, being thought to contain fluid, was punctured in order to ascertain which side the hernia was strangulated; but it was found that the fluid was fecal and within the gut. A ligature was placed round the puncture; but the gut subsequently gave way at another place when an attempt was made to return it. An artificial anus was therefore made. Peritonitis ensued. Vide P.M. no. 181.
5.	James C. Aged 25. (1239, Pl.)	Servant.	Right congenital inguinal, 4 years. No truss worn. Strangulated, 24 hours.	Sac opened; contained a knuckle of congested small intestine, a little fluid, and the testicle.	Recovered, 41 days.	
6.	Stephen R. Aged 60. (1479, Pl.)	Wood-merchant.	Right femoral, of old date. Truss worn for many years, but left off for last few years. Strangulated, 24 hours.	Sac opened; contained a knuckle of congested small intestine.	Recovered, 41 days.	He subsequently died in Hospital after an attack of rheumatism.

7.	Arthur M. 9 months. (1597, Pl.)	—	Left congenital inguinal. Truss worn for 5 weeks and then left off. Strangulated, 24 hours.	Sac opened; contained a knuckle of congested small intestine and the testicle.	Died, 10 days.	Sloughing of wound. Peritonitis. No post-mortem exam.
8.	Elizabeth C. Aged 60. (1634, Pl.)	Married.	Double femoral, of old date. Truss worn only on left side. Right strangulated, 13 hours.	Sac opened; contained a knuckle of congested small intestine and a little fluid.	Died, 2 days.	Peritonitis. Vide P.M. no. 272.
9.	Ann B. Aged 66. (1778, L.)	Married.	Double femoral. Right, 13 years; left, 2 years. Truss worn only on right. Left strangulated, 24 hours.	Sac not opened.	Died, 5 days.	Peritonitis; exhaustion; a very feeble woman. Vide P.M. no. 294.

Summary of Cases of Strangulated Hernia operated upon.

Total number of cases, 9; 4 males, 5 females.

Total number of deaths, 5; 2 males, 3 females.

Inguinal, 4 cases: 3 male, of which 2 died; 1 female, died. Sac opened in all. 2 were of the congenital variety. All the deaths were from peritonitis; but in one there was ruptured gut.

Femoral, 5 cases: 1 male; 4 female, of which 2 died. There was peritonitis in each case that died.

Table of Operations for Stone—1872.

No.	Name, age, No. in Register, surgeon.	Occupation and habits.	Symptoms.	Character of urine and stone.	Operation.	Result.	Remarks.
1.	Charles A. Aged 22 months. (1790, R.) 1871 Reg.	A weak and rickety child, with chronic bronchial catarrh.	Pain and frequent micturition for about a year.	Urine acid, containing mucus and lithates. Stone of uric acid, 102½ grains.	Supra-pubic Lithotomy.	Died, 8 days.	The child had been operated upon ten months before at another hospital, and no stone removed. The high operation was selected, owing to the small size of the pelvic aperture. Died from peritonitis. Vide P.M. no. 45.
2.	William F. Aged 74. (392, P.)	Shoemaker, a weak old man.	Pain, hæmaturia, cystitis, 5 years.	Urine contained pus and blood. Two stones, the larger the size of a chestnut, the other half that size; phosphatic.	Lateral Lithotomy.	Died, 8 days.	Cystitis; pyelitis. Vide P.M. no. 76. Lithotripsy in 1869; see Table of Stone, 1869, no. 2.
3.	Edmund V. Aged 4. (566, L.)	A rickety child.	Pain and hæmaturia, 1 year.	Urine could not be collected; three small uric acid calculi.	Medio-lateral Lithotomy.	Recovery, 18 days.	
4.	Percy A. Aged 8. (1484, Pl.)	A healthy child.	Pain and difficult micturition.	Urine natural; a large irregular stone, consisting of lithic acid and phosphates, which broke during extraction.	Lateral Lithotomy.	Recovery, 88 days.	A second stone discovered before he left the Hospital. Vide no. 5.

5.	Perry A. Aged 8. (1484, Pl.)	A healthy child.	Pain and difficult micturition.	Urine natural; a small uric acid stone.	Lateral Lithotomy.	Recovery, 27 days.	Vide no. 4.
6.	Annie C. Aged 8. (1598, Pl.)	A weak and emaciated child.	Pain and incontinence of urine.	Urine could not be collected; a large stone of lithic acid and phosphates.	Vaginal Lithotomy.	Recovery, 43 days.	

Summary of Cases of Operations for Stone.

Total number of cases, 6.
5 male, of which 2 died.
1 female, recovered.
All were cases of lithotomy.

TABLE OF OPERATIONS NOT INCLUDED IN THE PRECEDING TABLES.

CLASS I. *Operations on the Head, Neck, and Face.*

No.	Name, age, No. in Register, surgeon.	Nature of disease.	Nature of operation.	Result.	Remarks.
1.	Louisa M. Aged 15. (94, Pl.)	Cleft palate; hard and soft.	Cleft in hard palate closed.	Recovery, 20 days.	Good union.
2.	Emma B. Aged 19. (115, P.)	Cleft palate; part of hard and soft.	Closure of a hole remaining from former operation.		No union.
3.	Joseph C. Aged 28. (1517, Pl.)	Cleft palate; hard and soft.	Closure of cleft.	Recovery, 17 days.	Good union.
4.	Emma B. Aged 19. (459, Pl.)	Cleft palate; part of hard and soft.	Closure of a hole remaining from former operation.	Recovery, 15 days.	Partial union.
5.	Thomas S. Aged 58. (981, P.)	Epithelioma of lower lip.	Removal of growth.	Recovery, 6 days.	

6.	Ethier B. Aged 4 m. (163, P.)	Naevus of cheek.	Ligature.	Recovery, 27 days.	
7.	George P. Aged 8. (1507, Pl.)	Cleft palate; hard and soft.	Closure of hard palate.	Recovery, 20 days.	Partial union.
8.	Marian S. Aged 10. (1559, Pl.)	Cleft palate; hard and soft.	Closure of cleft.	Recovery, 25 days.	Union nearly perfect.
9.	Jane H. Aged 22. (1699, P.)	Fatty tumour on scalp.	Removal of tumour.	Recovery, 14 days.	
10.	Daniel M. Aged 19. (1731, Pl.)	Ulceration of lingual artery.	Ligature of common carotid artery.	Recovery, 54 days.	The ulceration occurred after an abscess, and the lingual artery was found opened so near its origin that it was necessary to ligature the main trunk.
11.	Richard W. Aged 53. (85, P.)	Fatty tumour of neck.	Removal of tumour.	Recovery, 49 days.	
12.	Sarah R. Aged 48. (118, L.)	Fatty tumour of neck.	Removal of tumour.	Recovery, 48 days.	
13.	Mary A. E. Aged 57. (122, L.)	Cancer of upper jaw.	Excision of superior maxillary bone, with tumour.	Died, 5th day.	Exhaustion. P.M. cancerous tumour growing from base of skull. Pneumonia.
14.	James P. Aged 75. (156, L.)	Cancer of lower jaw.	Removal of portion of lower jaw.	Died, 2d day.	Severe hæmorrhage.
15.	Ellen B. Aged four months. (1192, R.)	Sebaceous cyst of brow.	Removal of cyst.	Recovery, 21 days.	There was a depression in the bone beneath the tumour.

No.	Name, age, No. in Register, surgeon.	Nature of disease.	Nature of operation.	Result.	Remarks.
16.	Sarah W. Aged 16. (1822, R.)	Sebaceous cyst of brow.	Removal of cyst.	Recovery, 20 days.	
17.	Edward J. Aged 26. (217, Hol.)	Sebaceous cyst of scalp.	Removal of cyst.	Recovery, 8 days.	
18.	George D. Aged 64. (453, Hol.)	Epithelioma of scalp.	Removal of growth.	Died, 9th day.	Suppuration between bone and dura-mater, and between dura-mater and brain. Vide <i>Path. Soc. Trans.</i> vol. xxiii. p. 277.
19.	Charles C. Aged 63. (532, Hol.)	Cancer of face.	Removal of growth.	Recovery, 40 days.	
20.	Agnes B. Aged 24. (757, Hol.)	Symptoms of intra-cranial suppuration.	Trephining skull.	Recovery, 40 days.	No matter was discovered beneath the bone.
21.	Thomas W. Aged 46. (776, Hol.)	Cancer of face.	Removal of growth.	Recovery, 28 days.	
22.	Mary A. T. Aged 80. (1639, Hol.)	Epulis, upper jaw.	Removal of growth.	Recovery, 13 days.	

Besides the above, there were three operations for removal of polypi, one for removal of an epulis, and several secondary operations for cleft palate.

CLASS II.
Operations on the Upper Extremity.

No.	Name, age, No. in Register, surgeon.	Nature of disease.	Nature of operation.	Result.	Remarks.
1.	George S. Aged 18. (389, P.)	Caries of elbow-joint.	Excision of elbow.	Recovery, 41 days.	Good movement.
2.	John C. Aged 26. (523, P.)	Caries of shoulder-joint.	Excision of head of humerus.	Recovery, 139 days.	Vide specimen, ser. iii. 153c.
3.	Sarah M. Aged 46. (686, P.)	Fatty tumour on shoulder.	Removal of tumour.	Recovery, 13 days.	
4.	Isabella S. Aged 85. (1710, P.)	Recurrent tumour of shoulder.	Removal of tumour.	Recur- rence of growth.	
5.	Frederick M. Aged 18. (1721, Pi.)	Enchondroma of hand.	Removal of tumour.	Recovery, 20 days.	
6.	Ann B. Aged 20. (1458, Pi.)	Fatty tumour of shoulder.	Removal of tumour.	Recovery, 12 days.	
7.	William S. Aged 8. (1616, L.)	Exostosis of scapula.	Removal of tumour.	Recovery, 15 days.	

No.	Name, age, No. in Register, surgeon.	Nature of disease.	Nature of operation.	Result.	Remarks.
8.	Francis F. Aged 49. (1091, Hol.)	Epithelioma of hand.	Removal of growth.	Recovery, 10 days.	
9.	Julia F. Aged 29. (1674, Hol.)	Fatty tumour of shoulder.	Removal of tumour.	Recovery, 17 days.	

Besides the above, there were nine operations for removal of bone, and two for division of tendons.

CLASS III. *Operations on the Thorax.*

No.	Name, age, No. in Register, surgeon.	Nature of disease.	Nature of operation.	Result.	Remarks.
1.	Mary L. Aged 33. (117, H.)	Recurrent tumour of breast.	Removal of tumour.	Recovery, 9 days.	
2.	Jane F. Aged 50. (202, R.)	Recurrent cancer of breast.	Removal of growth.	Recovery, 57 days.	
3.	Eliza S. Aged 22. (475, H.)	Chronic mammary tumour.	Removal of tumour.	Recovery, 17 days.	

4.	Sarah T. Aged 53. (1401, R.)	Cancer of breast and axillary glands.	Removal of breast and dis- eased glands.	Recovery, 30 days.
5.	Mary W. Aged 40. (1402, R.)	Cancer of breast and axillary glands.	Removal of breast and dis- eased glands.	Recovery, 42 days.
6.	Ann B. Aged 50. (387, P.)	Cancer of breast.	Removal of breast.	Died, 17 days. Erysipelas. No post-mortem examination.
7.	Ellen T. Aged 40. (390, P.)	Sero-cystic tumour of breast.	Removal of breast.	Recovery, 20 days.
8.	Sarah B. Aged 40. (1168, P.)	Cancer of breast.	Removal of breast.	Recovery, 31 days.
9.	Ann D. Aged 50. (1439, P.)	Cancer of breast.	Removal of breast.	Recovery, 54 days.
10.	Mary A. H. Aged 38. (1698, P.)	Molluscum fibrosum.	Removal of large pendulous growth from skin of tho- rax.	Recovery, 40 days. Vide specimen, ser. xvi. 113. Draw- ings, ser. xxi. 181m., n., and o. Also <i>Med.-Chir. Soc. Trans.</i> vol. lvi. p. 255.
11.	Eliza H. Aged 45. (271, L.)	Cancer of breast.	Removal of breast.	Recovery, 14 days.
12.	Minnie C. Aged 32. (1190, R.)	Cancer of breast.	Removal of breast.	Recovery, 13 days.
13.	Amelia P. Aged 60. (797, H.)	Cancer of breast.	Removal of breast.	Died, 2 days. Apparently from the shock of the operation.

No.	Name, age, No. in Register, surgeon.	Nature of disease.	Nature of operation.	Result.	Remarks.
14.	Harriet D. Aged 55. (1640, R.)	Cancer of breast.	Removal of breast.	Recovery, 20 days.	
15.	Ellen T. Aged 40. (1715, Pl.)	Recurrent cancer of mammary region.	Removal of tumour.	Recovery, 23 days.	

CLASS IV.

Operation on the Abdomen.

See Table of Cases of Strangulated Hernia. For Ovariectomy, see Operations on the Genito-Urinary Organs.

No.	Name, age, No. in Register, surgeon.	Nature of disease.	Nature of operation.	Result.	Remarks.
1.	Hannah T. Aged 32. (268, L.)	Stricture of rectum.	Division of stricture.	Recovery, 33 days.	

Besides the above, there were eighteen operations for fistula in ano, and eleven for hemorrhoids.

CLASS V. *Operations on the Genito-urinary Organs.*

No.	Name, age, No. in Register, surgeon.	Nature of disease.	Nature of operation.	Result.	Remarks.
1.	Emma C. Aged 23. (61, R.)	Vesico-vaginal fistula.	Closure of opening.	Recovery, 58 days	Partial union of fissure.
2.	Charles D. Aged 25. (779, H.)	Obliteration of urethra.	Perforation of the obstruction by trochar.	Recovery, 33 days.	
3.	Edward H. Aged 34. (1007, P.)	Stricture of urethra.	Perineal section.	Died, 23 days.	No instrument could be passed into bladder before operation. Urine purulent. Perforation of bladder by ulceration. Peritonitis. Pyelitis. Vide P.M. no. 203. Specimen, ser. xli. 69.
4.	George H. Aged 34. (1167, P.)	Ruptured urethra.	Perineal section.	Died, 14 days.	Fracture of pelvis. Vide P.M. no. 197.
5.	Charles B. Aged 35. (1297, P.)	Stricture of urethra.	Perineal section.	Recovery, 28 days.	No instrument could be passed into bladder before operation.
6.	Annie T. Aged 70. (1426, P.)	Eplthelioma of labium.	Removal of growth.	Recovery, 34 days.	
7.	Eliza T. Aged 29. (1785, P.)	Vesico-vaginal fistula.	Closure of opening.	Recovery, 27 days.	Complete union.

No.	Name, age, No. in Register, surgeon.	Nature of disease.	Mature of operation.	Result.	Remarks.
8.	Thomas W. Aged 35. (278, L.)	Scrofulous disease of testicle.	Removal of testicle.	Recovery, 33 days.	No instrument could be passed into the bladder before the operation. The tumour was a melanotic spindle-celled sarcoma. Vide <i>Path. Soc. Trans.</i> vol. xliii. p. 175.
9.	Philip F. Aged 42. (1758, L.)	Stricture of urethra.	Perineal section.	Recovery, 110 days.	
10.	Hugh W. Aged 52. (179, Hol.)	Tumour of penis.	Amputation, anterior third of penis.	Recovery, 21 days.	
11.	Mary W. Aged 40. (311, Hol.)	Vascular tumour of urethra.	Removal of tumour.	Recovery, 6 days.	
12.	John R. Aged 18. (1668, Hol.)	Rupture of urethra.	Perineal section.	Recovery, 124 days.	
13.	Mary F. Aged 44. (28, Hol. Med. Reg.)	Ovarian cyst.	Ovariectomy.	Died, 1 day.	From shock.

Besides the above, there were four operations for phimosis, eleven for hydrocoele, six for varicocele, and one for ruptured perineum.

CLASS VI.
Operations on the Lower Extremity.

No.	Name, age, No. in Register, surgeon.	Nature of disease.	Nature of operation.	Result.	Remarks.
1.	Charles S. Aged 26. (254, P.)	Caries of tibia after Syme's amputation.	Removal of a slice of the end of the tibia.	Recovery, 60 days.	There was great pain before the operation, which entirely ceased after the removal of a portion of softened and inflamed bone.
2.	James M. Aged 17.	Exostosis of tibia.	Removal of growth.	Recovery, 101 days.	
3.	Charles H. (1757, P.) Aged 26. (1017, L.)	Inflammation of head of tibia.	Tibia trephined.	Recovery, 12 days.	
4.	Samuel H. Aged 9. (1626, L.)	Caries of hip-joint.	Excision of head of femur.	Recovery, 90 days.	No reparation took place; and as he was becoming exhausted by the suppuration, the limb was amputated. He died a few hours after the operation
5.	William M. Aged 18. (1638, L.)	Caries of knee-joint.	Excision of knee.	Recovery, 68 days.	
6.	John P. Aged 4. (9, Hol.)	Caries of hip-joint	Excision of head of femur. Removal of sequestrum from acetabulum.	Died, 88 days.	

No.	Name, age, No. in Register, surgeon.	Nature of disease.	Nature of operation.	Result.	Remarks.
7.	Anna J. Aged 11. (432, Hol.)	Caries of knee-joint.	Excision of knee.	Recovery, 4 months.	A useful limb.
8.	Henry H. Aged 5. (432, L.)	Caries of hip-joint.	Excision of head of femur.	Recovery, 2 months.	A useful limb.

Besides the above, there were seventeen operations for removal of bone, thirteen for division of tendons, and eleven for varix.
See also table of amputations.

XXIII. REPORT OF SURGICAL CASES

ADMITTED DURING THE YEAR 1873.

By E. R. ROWLAND.

THE total number of cases admitted during the year 1873 was 2048; of which 1285 were males and 760 females. Among these there occurred 107 deaths—79 males and 28 females; and of this number 8 were brought in dead or died within twenty-four hours of admission. The rate of mortality was therefore, for males, 5·9, and females, 3·3; or for the whole, 4·8 per cent. The mean residence in the Hospital was 29·3 days.

The following are a few remarks concerning the cases admitted during the year 1873.

Of *injuries* there were 728, of which 48 were fatal.

The cases of *burn* number 22, of which 7 died; there were 17 cases of *scald*, but no deaths.

Of *Injuries of the Head* there were 172, of which 17 were fatal.

One man, *set.* 32, was knocked down in the street, and struck his head and shoulder. On admission into the Hospital he was conscious, but restless and peculiar in his manner and expression; there was a contusion over the right eye. A purge was given him. On the fifth day he became delirious, and he was ordered calomel, *gr.* iij., chalk, *gr.* v., to be taken every four hours; ice to his head. Pulse 120; pupils act; skin hot and dry. Eighth day he is gradually losing consciousness and becoming semi-comatose; urine drawn off; pulse 100. Next day became quite unconscious; divergent strabismus; pupils not conscious to light; pulse 130. Calomel, *gr.* v. *st.*; *vin. rubri*, *ʒiv.* daily. Three days after this began to regain consciousness; he had partial loss of power in the right upper and lower extremities. On the fourteenth day he was sufficiently well to eat a mutton-chop; almost conscious; more power in extremities. Sixteenth day he became entirely conscious; much more power in extremities. Porter *oj.* Thirty-seventh day gets up; has fair use of arm and leg; slight giddiness in his head when he walks; strabismus disappeared. Thirty-ninth day discharged, improved.

A man, *æt.* 21, shot himself in the forehead with a saloon pistol. On admission it was found that there was a small wound in the integuments of the forehead about the size of a pea, surrounded by a small ring of black discoloration; he does not speak, nor will he answer any questions put to him, but he appears to be conscious; pulse 60. The day after admission vomited several times. On second day, pulse 56, very irregular; is in a drowsy condition; takes nourishment freely. On third day became very restless; wound looks well; pulse 56, still irregular; does not speak; urine runs from him. Subcutaneous injection of morphia, *gr.* $\frac{1}{4}$, repeated twice during the day. Fourth day less restless. Injection of morphia repeated; to have an enema of soap-and-water; calomel, *gr.* v. *st.* Wound projects slightly; very little discharge from it. Fifth day put his tongue out, for first time, when asked; it is white and coated; bowels not acted. Seventh day bowels acted very freely; passes his motions and urine unconsciously; pulse 134, temp. 100° 8'; seems much weaker; still remains silent; perspiring freely. On the eighth day he died. At the post-mortem examination a small hole was found in the left side of frontal bone; the membranes were perforated at the corresponding spot, and within the arachnoid on the left posterior lobe of the brain there was a thin layer of dark blood-clot. A line of softened and inflamed brain-tissue led from perforation of membranes in the left anterior lobe straight across the brain from before backwards to within an inch of posterior surface, terminating in a considerable area of softened tissue, wherein, at about half an inch below the level of the inflamed line, was found a small leaden bullet, a quarter of an inch in diameter, and weighing sixteen grains. The bullet, in its course, had grooved the upper border of left corpus striatum; the left ventricle was filled with blood-clot. The other organs of the body were natural.

Another interesting case was that of a man, *æt.* 40, who was trying to stop a runaway horse, when he suddenly lost his senses and fell to the ground; on being picked up he was found to be partially insensible, and had lost the power of speech; this happened eleven months ago. On admission he has almost entirely lost the power of speech, only being able to say the word 'ha' to all questions put to him; the right side of his face is partially paralysed; the tongue when put out points to the right side; there is partial paralysis also of the right arm; the right pupil is rather dilated, but it acts freely; there is no loss of power in the leg. He understands questions when put to him. The right eye was examined by the ophthalmoscope, and it was found he had optic neuritis; he was under surgical treatment for eight weeks, when his paralysis improved, but the speech did not; he was then transferred to the physicians.

A man, *æt.* 44, left home, as usual, to go to his work at seven o'clock in the morning, showing no symptoms of illness; he was shortly after picked up in an insensible condition and conveyed to the Hospital. When admitted there was a puffy swelling on the left side of the head, extending halfway over the scalp; he was quite insensible; pupils acted; pulse rapid; breathing rather quick. An incision was made in the

scalp over the tumour down to the bone, and a fissure in the skull was felt; there was no blood extravasated in the tissues; shortly after the incision was made he became more conscious and answered questions correctly. A calomel purge was given him; next day puffiness of scalp was less; complained of pain in his head. On seventh day became slightly delirious and very restless; wound progressing favourably. On eleventh day the delirium had ceased and pain in the head gone. On the sixteenth day he was quite quiet and free from pain, and was discharged from the Hospital.

A man, *æt.* 73, was thrown from a carriage on to his head. When admitted he was insensible; there was a scalp wound, about two inches in length, on the left side of the head, and a fissure to be felt at the bottom; there was facial paralysis. An incision was made in the scalp near the anterior inferior angle of the parietal bone, and the skull was trephined for the middle meningeal artery, which was supposed to be ruptured; but the operation was not successful; the man rapidly sank and died.

At the post-mortem examination it was found that a fracture ran downwards and forwards across the middle fossa of the skull to the sphenoidal fissure, crossing the groove for the middle meningeal artery about half an inch below the trephine hole; there was a considerable quantity of blood between the dura-mater and bone, and also a quantity beneath the arachnoid over the greater part of the left hemisphere.

A man, *æt.* 50, slipped on a piece of iron, and fell on the back of his head. When admitted into the Hospital there was a small wound, an inch in length, at the back of his head; complains of a twitching movement of his head, which he states he did not have before. On the thirteenth day after the accident the twitching became much less, the wound healed, and he was discharged.

A child, *æt.* 2, fell out of a window, about ten feet, on to its head. When admitted he was in a comatose condition, but became sensible shortly after; he vomited, and the vomit was streaked with blood; there was a large bruise on the left side of the head. He progressed favourably till the fifth day, when convulsions came on; he had also paralysis of left side of face. On the sixth day became insensible, and died.

Post-mortem examination showed fracture, which ran from left side of foramen magnum across the petrous portion of the temporal bone, completely dividing it just in front of the internal auditory meatus, and up on to the sphenoidal bone, stopping just short of the sphenoidal fissure. The seventh nerve was nearly torn across. There was a layer of blood between the skull and dura-mater over the left temporo-parietal region; recent lymph over the base of the brain.

Of 7 cases of fractured base, 4 died; 2 were complicated with other injuries.

There were also 5 cases of compound fracture of the skull; 3 died; 3 were complicated.

One case, a man, *æt.* 23, a brick fell on his head, a distance of about

twenty feet. When admitted there was a scalp wound, about two inches in length, over the right parietal eminence, beneath which the skull was broken in; several pieces of bone, both of the inner and outer tables, were elevated and removed, leaving a hole the size of a florin; the meninges could be seen to pulsate distinctly, but they were not injured. The man was kept at rest, and an occasional purge given him; and he recovered, without having a bad symptom, in ten weeks, when he was discharged, the wound having nearly quite healed.

Injuries of the Face furnish only one case for observation.

A man, æt. 23, while working at a saw-mill, was struck violently on the face by a piece of wood, causing a fracture of the nasal bones, and also a compound fracture of palate process of palate-bone. The fracture of palate-bone would appear to have been caused by the nasal bones having been driven on to the vomer, and the vomer acting as a wedge on palate-bone—thus splitting it. He recovered sufficiently by the fifth day to leave the Hospital.

There were 40 cases of *Injuries to the Back*, 3 of which proved fatal.

Injuries of the Neck only amounted to 7; of these 3 were due to suicide; only one case proved fatal.

Injuries of the Chest amounted to 40; they were chiefly fractured ribs and contusions; 4 cases proved fatal from fractured ribs.

One case which proved fatal was a man who was thrown from a cart, but how it occurred was not known. On admission he was in a semi-comatose condition. Ribs on the left side were fractured, and there was a considerable amount of emphysema. There was also fracture of both bones of the right leg; the breathing was very difficult. The next day he had great difficulty in breathing; suddenly turned blue, and died.

At post-mortem examination it was found that he had a fracture of the skull close to parietal bone. A thin layer of blood also covered the right hemisphere and left parietal lobe. The under surface of right frontal lobe was lacerated; there was fracture of ribs, and lung was punctured. The other organs were natural.

Another fatal case was that of a man, æt. 58, who was knocked down and run over by a cart. On admission there was fracture of the inferior ribs on both sides, and symptoms of ruptured kidney. Next day passed blood in his urine; breathing became more difficult, and he died on the second day after admission. No post-mortem examination was made.

Of *Injuries of the Abdomen* there were 14; 1 proved fatal.

A boy, æt. 11, was kicked on the abdomen by a horse. When admitted, three days after the accident occurred, there was great swelling of the abdomen, which was very tympanitic; great pain on slight pressure; breathing almost entirely thoracic; tongue coated; pulse 100;

bowels acted freely; there was a bruise on right side of the abdomen over the iliac fossa. The next day he was ordered calomel, gr. $\frac{1}{2}$, every night and morning; there was no alteration in the symptoms. On the second day the powder was omitted, and a saline draught, with a grain of carbonate of ammonia, was given every four hours. Abdomen more swollen and tympanitic; complains of very great abdominal pain; has vomited several times; bowels not acted. On third day symptoms continued the same, but he has not vomited. Hyd. subchlor. gr. ij.; pulv. rhei. gr. viij. Fourth day had fecal vomiting; abdomen enormously distended; pulse 120; tongue coated; gradually sank and died.

Post-mortem examination. On opening the abdomen a quantity of feculent fluid escaped. The peritoneum was vascular; the coils of intestine in the lower half of the abdomen were adherent to each other by recent lymph. In the ileum, a few inches above the valve, was a rent an inch long; the parts around were softened, edges of rent thickened. The other organs were natural.

There were 58 *Injuries of the Upper Extremity*, 3 of which cases proved fatal.

One man, set. 48, had his finger amputated two days before admission for stiffness of the joints; he went home, and when he arrived there complained of sickness. On the same night he had two severe rigors, followed by profuse sweating; had had no sleep since his finger was amputated. On admission into the Hospital he is somewhat delirious; pulse 120; respiration 40; tongue brown and dry; skin slightly yellow; stump looks very dry, very little action about it. He was ordered brandy-and-egg mixture. On second day, pulse 120; respiration 40; still remains in a very exhausted condition and delirious. Ammon. carb. gr. v.; tr. cinchon. 3j.; sp. chlorof. ʒss.; aqua ad. ʒiss., every four hours; strong beef-tea and milk. On third day he became almost quite unconscious; pulse 140, very weak; gradually sank and died.

At the post mortem examination it was found that the lungs were extremely and uniformly congested. The other organs of the body were natural.

Another fatal case was that of a boy, set. 14, who poisoned his right thumb while cleaning pewter pots, having previously bruised it. On admission there is an old abscess on the inner part of right thumb; the veins from the thumb are inflamed up the arm as high as the elbow. He is in a semi-conscious condition, wandering very much; he looks very dusky; breathing very rapid. On listening to the chest, the respiration is very rough; heart's action much increased. Urine high-coloured; passes most of it unconsciously. Next day his pulse was 120, temp. 103.2°; tongue white and coated; seems very thirsty; has had several rigors since his illness commenced. Brandy, ʒij., calomel, gr. x. st.; calomel, gr. ij., opii, gr. $\frac{1}{4}$, to be taken every three hours. Two pins were passed under cephalic vein to prevent further absorption. On second day, pulse 124; is much more unconscious; he looks bluer; temp. 103°; bowels not acted; passes all his urine unconsciously. Calomel, gr. x. statim; hst. ammon. cit. ʒiss., to be taken every four hours. He died in the evening.

Post mortem there was found blood in sheath of long flexor tendon of the thumb; the radial vein, and a vein leading from wound into it, were found thickened and contained blood-clot; the cephalic vein had been divided and a small abscess had formed at this point; the radial vein was filled with pus from commencement to entrance into the cephalic vein. The median cephalic vein was natural, and contained a little fluid blood; but the cephalic vein contained pus as far as to where it had been divided; the portion of this vein beyond its divided end and between that and the part compressed by the needles contained a purulent clot, very soft and not adherent to the vessel. There were numerous circumscribed abscesses in the lungs, surrounded by dark zones of congestion. The kidneys also contained numerous circumscribed abscesses.

There were also several cases of compound fracture, which will be found in the table of those cases.

Of *Injuries of the Lower Extremity* there were 353 cases, and 17 deaths, 6 of the deaths being cases of compound fracture; 3 died of contusions about the thigh, death taking place in two of these cases from abscess forming and excessive discharge of pus causing exhaustion; the other case died of old age. Only one case died who had simple fracture of the leg. In this case a man, aged sixty-two, was admitted with simple fracture of the left leg; he had been in the habit of drinking freely, and was very restless. A slough formed over the seat of fracture, and when it separated it exposed the ends of the bones; excessive discharge of pus came from the wound, from which he died on the ninety-seventh day. He was considered to be too ill for any operative interference.

There were 2 cases of fractured pelvis, both of which did well; one of these was complicated with ruptured bladder and slight extravasation of urine.

Diseases of the Organs of Motion. This class gives 331 cases, including, as it does, diseases of bone and joints. Most of the special cases of this class are included in the tables of operations for diseases of this description.

A man, æt. 40, a sweep, was admitted into the Hospital with the following history: About three months ago a swelling formed in the left groin, which turned out to be an abscess, and was opened a month ago—it has been discharging ever since.

On admission there is an old abscess in the left groin, which smells very offensively; there is also thickening in the iliac fossa. The abscess continued to discharge, and did not look at all malignant till he

had been in the Hospital about two months, when it commenced to look malignant; it then spread and ulcerated deeply into the groin. Twenty-seven days after this he had a severe loss of blood from the femoral artery, which had been ulcerated into. The ulceration was found to be epithelial by the microscope.

Another case was that of a man, *æt.* 52, who was admitted into the Hospital with an ulcer on the heel, due to his boot having rubbed it. The ulcer was at first treated simply with lotions; but not finding any improvement, it was treated by local calomel fumigation and the internal administration of iodide of potassium and subchloride of mercury, but without any beneficial effect on the ulcer. Fourteen days after admission the lymphatics up the leg commenced to inflame, and an abscess formed in his groin, which burst on the seventeenth day. The abscess continued to discharge, but looked unhealthy till about the eightieth day, when it took a decidedly malignant character. He then commenced to loose flesh very rapidly, and he died, worn out by pain and excessive discharge, on the hundred and twenty-first day. The ulcer remained the same as when admitted.

Another case of epithelioma appearing in a scar was that of a man, *æt.* 40, who stated that fifteen years ago he was struck on the top of the head by a stone, which produced a large wound, which healed up almost completely, but left a small scab in the centre about the size of a fourpenny-piece; five years ago he knocked the scab off, and an ulcer formed. About eight months ago a small tumour commenced to sprout from the cicatrix, which has been gradually increasing up to the present time. On admission there is a cicatrix on the top of the head, about two inches by one and a half, in the centre of which is a small ulcer, and close to the ulcer there is a small tumour, which is ulcerated on the surface. Fifteen days after admission the growth was freely removed, also the ulcer. The growth was found to be epithelial. He left the Hospital, recovered, on the fifty-fifth day.

There were 5 cases of necrosed bone treated by caustic potash; one of these, a boy aged 5, died of meningitis; the remaining cases did well.

The table of operations exhibits the number and character performed for this class of diseases.

Diseases of the Organs of Circulation. In this class there were 5 cases of aneurism.

A boy, *æt.* 7, fell down with a jug and cut his wrist, and wounded the radial artery; this caused a small aneurism to form, about the size of a hazel-nut. The vessel was tied above and below, and he made a good recovery.

There were 2 cases of thoracic aneurism in the surgical wards.

A man, *æt.* 49, was admitted into the Hospital with a pulsating tumour situated in the infra-clavicular region of right side; it was about the size of half an orange, and extended between the first and third ribs;

there was a distinct bruit. He was treated by the subcutaneous injection of a solution of ergotine over the tumour, which did not prove of any benefit; secondly, by galvano-puncture. After the first punctures the tumour became more solid, and remained so for about four days; it then commenced to increase again, and was again punctured with a similar result; the operation was repeated several times, till the skin commenced to inflame, and there appeared to be an inflammatory action going on in the sac. His breathing became very difficult, and he appeared to die from dyspnoea. The aneurism involved the arch of the aorta; it contained a large blood-clot, of which the circumferential part was laminated and yellow; the central part soft and dark. There was a recent blood-clot in the transverse portion of the arch. The kidneys were granular.

Another case was that of a man, æt. 32, who had been a soldier; he states that he had noticed a pulsating swelling below the left clavicle for about three months. The sternal end of the clavicle is dislocated forwards, and it moves with the pulsation; a bruit can be heard in it. He has been treated by ice on the tumour, which had the effect of slightly reducing the size of the tumour; secondly, by the subcutaneous injection of a solution of ergotine, which caused the tumour to become more solid and pulsation in it less distinct. He left the Hospital improved.

Among the *Diseases of the Respiratory Organs* were 2 cases of foreign bodies in the trachea.

One, a boy, æt. 2, swallowed a piece of tobacco-pipe, which lodged at the bifurcation of the trachea. Laryngo-tracheotomy was performed, but the foreign body could not be discovered; the child died, and post mortem it was found that the foreign body had entered the right bronchus, and stretching across the trachea almost completely occluded the passage to the left bronchus. There was pneumonic consolidation of the base of right lung; the left lung was congested. (*Vide* preparation in Museum, series vii. 79a.)

Another was a case of a child who had swallowed a piece of rabbit-bone; this was extracted, with some difficulty, with a pair of long curved forceps.

The *Diseases of the Organs of Digestion* furnish a large number of cases; the most interesting cases, however, are to be found in the table on strangulated hernia.

There were 3 cases of prolapsus ani.

One man, æt. 58, who since he was operated on for fistula in ano, about ten years ago, has suffered from constant prolapse of the rectum to a great extent; his anus was so dilated that it would admit the whole hand easily. He was operated on by taking a triangular piece of skin out of the margin of the anus and bringing the edges together, thus lessening its calibre. Erysipelas, however, attacked the wound, spreading up the body, which caused his death.

There were 2 cases of obstruction of the bowel.

One patient, a man, æt. 49, was admitted with complete obstruction of the bowels for six days; had had stercoraceous vomiting. A long tube was passed and an enema given, and a considerable quantity of feces was discharged; notwithstanding which the fecal vomiting continued, and he died. At the post-mortem examination there was found a diverticulum, about two and a half inches in length, connected with the lower part of the small intestine, and between this and the mesentery were firm bands of adhesion; the fibrous bands, in one or two places, ran over the diverticulum, and in one place caused such constriction that the little finger could scarcely be passed through it. There was a considerable quantity of fluid feces above the constriction, but very little below it.

The other case was that of a man, æt. 54, who had fecal vomiting the day before admission. When admitted he was in an extremely exhausted condition, continually vomiting fecal matter, with great distension of abdomen, and great pain. There was a hard solid-feeling swelling in the left groin, which, taking into consideration the symptoms, was cut down on; it proved to be nothing but an enlarged gland; he rapidly sank and died. It was found that three feet of the jejunum were extremely vascular, which vascularity ended abruptly at a point where two coils of intestine were adherent; and here the bowel was doubled on itself in such a way as evidently to have caused obstruction. On separating the adhesion two small openings were found in the bowel, and at this point the mucous surface was irregularly ulcerated.

Diseases of the Urinary Organs. The cases of stone will be found in the table of those cases.

A man, æt. 56, was admitted stating that he had a difficulty in passing his urine, and that it was continually running away from him; the whole of the lower part of the abdomen had an erysipelatous blush over it, and the scrotum was in a sloughy condition. Being in a very exhausted condition it was thought advisable to do nothing; he had rigors, and died within twenty-four hours.

At the post-mortem examination it was found that the greater portion of the secreting tissue of the left kidney had disappeared, its place being occupied by a series of cavities separated by fibrous septa; these cavities contained fragments of calcareous deposit and decomposed urine. The pelvis and ureter was dilated. There were several small cysts on the surface of the kidney. There was a dense stricture of the membranous portion of the urethra, and several false passages leading into the sloughy tissue.

A man, æt. 46, was admitted suffering most acute pain when passing his water; he also had a slight stricture. He was treated for cystitis, but he ultimately died worn out by pain. The left kidney contained a large irregular-shaped calculus. The cortex of this kidney was almost entirely destroyed. In the cortex of the right kidney numerous small abscesses were found. The lining membrane of the bladder was extremely congested, extensively ulcerated, and covered with a phosphatic deposit.

The viscus contained a few ounces of offensive urine. The lining membrane was in a similar condition.

Another case was a man, æt. 36, who came in with a very tight stricture and a sinus in his perinæum, through which urine came. Holt's dilator was used, which relieved him for a time; but contraction of the urethra again took place. Internal urethrotomy was had recourse to; three days after this he vomited several times, his abdomen became tympanitic, vomiting continued, and he died on the fourth day of peritonitis.

Another case was that of a man, æt. 38, who was suffering from a very bad stricture of eight years' standing. Several endeavours were made to pass a catheter, but without success; three days after he had had a severe rigor perineal section was performed. He lost a considerable amount of blood from the wound and rectum. He had very little abdominal pain or swelling; he died, apparently exhausted, on the seventh day after the operation. At the post-mortem examination it was found that he had peritonitis, and purulent fluid in the abdominal cavity, and a large abscess situated between the rectum and bladder.

Among the cases of *Diseases of the Skin* was a woman, aged 68, who died of pyæmia, and one case of chronic eczema, who died of acute hydrocephalus.

The *Diseases of the Male Organs of Generation* give no special cases of interest.

The *Diseases of the Female Organs of Generation* furnish 13 cases of cancer of the breast. There were no cases of ovariectomy.

Table of Surgical Cases admitted during the Year 1873.

Nature of injury.	1873.			
	Total number of admissions.	Total number of deaths.	Complicated with other disease or injury.	Operations.
A. General injuries:				
a. Burns	22	7		
b. Scalps	17			
B. Local injuries:				
1. Of the head:				
a. Scalp-wounds	88	2	7	
b. Scalp-wounds exposing bone	23		3	
c. Concussion	21	3	2	
d. Fracture of the skull	7	5		1
e. Compound " "	5	3	3	1
f. Fracture of base "	7	4	2	
g. Contused scalp	27		2	
2. Of the face:				
a. Fracture of the lower jaw	4	2	2	
b. Fracture of the bones of face	2			
c. Contusions of face	12		1	
d. Wounds "	16		3	
e. Wounds of eyeball				
f. Contusions "	3		1	
g. Gunshot wounds	1	1		
3. Of the back:				
a. Fractured spine	1	1	1	
b. Sprains and contusions	37	1	3	
c. Concussion of spine	2	1		
4. Of the neck:				
a. Wounds	2	1		
b. Contusions	4			
5. Of the chest:				
a. Fractured ribs	24	4	4	
b. Contusions	14		1	
c. Wound of parietes	2			
6. Of the abdomen:				
a. Contusions	8	1		
b. Injuries of scrotum or penis	2			
c. Wound of abdomen	1			
d. Ruptured viscus	1			
e. Fractured pelvis	2			
7. Of the upper extremity:				
a. Contusions	1			
b. Wounds of arm	9		1	1

Nature of injury.	1873.			
	Total number of admissions.	Total number of deaths.	Complicated with other disease or injury.	Operations.
7. Of the upper extremity— <i>continued</i> .				
c. Wounds of forearm	6	1		1
d. " hand	17	2	1	7
e. Fractured clavicle	4	1		
f. " humerus	7	1		
g. " forearm	5	1		
h. Compound fractures	6	1	3	1
i. Dislocated shoulder	2			1
k. " elbow				
8. Of the lower extremity:				
a. Contusions	44	3	3	3
b. Wounds of thigh	12	1		
c. " leg	17	1	2	
d. " foot	10	1	1	4
e. Fractured femur	38	1	3	
f. " neck of femur	8	2	1	
g. Fractured tibia	58	1	1	
h. " fibula	24		1	
i. " patella	10			1
k. " leg	19		1	
l. " foot	2			
m. " pelvis	2		1	
n. Ununited fracture	1			
o. Compound "	17	6		5
p. Dislocated hip				
q. " patella	1			
r. " ankle	1			
s. " knee				
t. Sprained hip	13		3	
u. " knee	18		1	
v. " ankle	56			1
x. Gunshot wound	1	1		1
C. General diseases:				
a. Erysipelas	17	2	1	1
b. Diffuse cellulitis	4	1	1	
c. Sloughing				
d. Gangrene	1			
e. Tetanus				
f. Pyæmia				
D. Local diseases:				
1. Of the organs of motion:				
a. Necrosis	72	1		33
b. Caries of bone and joint	88	3	2	17
c. Diseased spine	13		2	
d. Tumours of bone				
e. Rickets	1			
f. Periostitis	14	1		4
g. Synovitis	33			3
h. Ulceration of cartilages	8			1
i. Abscess in joint	7			33
k. Hysterical pain in joint	13			

Nature of disease.	1873.			
	Total number of admissions.	Total number of deaths.	Complicated with other disease or injury.	Operations.
1. Of the organs of motion— <i>continued</i> .				
l. Ankylosis	2	.	.	1
m. Rheumatism	11	.	.	.
n. Loose cartilage	2	.	.	2
o. Inflamed bursa patellæ . . . . .	.	.	.	.
p. " other bursa	7	.	.	4
q. Bursal tumour	5	.	.	.
r. Thecal abscess	2	.	.	1
s. Contracted tendon	23	.	.	6
t. Abscess	1	.	.	1
u. Exostosis	2	.	.	.
v. Abscess of bone	6	.	.	1
w. Inflammation of bone	9	.	.	1
x. Enchondroma	2	.	.	2
y. Muscular atrophy	1	.	.	.
2. Of the organs of circulation :				
a. Disease of heart . . . . .	.	.	.	.
b. Aneurism	5	2	.	2
c. Nævus	6	.	.	3
d. Varicose veins	19	.	.	11
e. Phlebitis	5	.	.	.
f. Inflamed absorbents	4	.	.	.
g. Hypertrophy of glands	12	.	.	8
h. Tumour of gland	1	1	.	.
3. Of the organs of respiration :				
a. Disease of larynx	6	2	.	3
b. Phthisis	1	.	.	.
c. Pleurisy	1	.	.	1
d. Foreign body in trachea	2	.	.	1
4. Of the nervous system :				
a. Meningitis . . . . .	.	.	.	.
b. Delirium tremens . . . . .	.	.	.	.
c. Paralysis	4	.	.	.
d. Sciatica	5	.	.	.
e. Neuralgia	1	.	.	.
f. Mania	1	.	.	.
g. Collapse	4	1	.	.
5. Of the skin and appendages :				
a. Eczema	21	.	1	1
b. Rupia	5	.	.	.
c. Psoriasis	6	.	.	1
d. Impetigo	1	.	.	.
e. Lupus	1	.	.	.
f. Purpura	1	.	.	.
g. Erythema	3	.	.	.
h. Ulcer	96	4	3	3
i. Abscess	102	.	2	1
k. Cancerous ulcers	8	3	.	1
l. Fatty tumour	6	1	.	5
m. Sebaceous "	5	.	.	4
n. Encysted "	5	.	.	5

Nature of disease.	1873.			
	Total number of admissions.	Total number of deaths.	Complicated with other disease or injury.	Operations.
5. Of the skin and appendages—continued.				
<i>o.</i> Malignant tumour	8	1		3
<i>p.</i> Fibrous	10			7
<i>q.</i> Carbuncle	7			4
<i>r.</i> Boil	2			
<i>s.</i> Lichen	3			
<i>t.</i> Acne	1			
<i>u.</i> Ichthyosis	1			
<i>v.</i> Herpes	1			
<i>w.</i> Ecthyma	3			
<i>x.</i> Prurigo	1			
<i>y.</i> Paronychia	1			
<i>z.</i> Onychia	4			2
6. Of the eye, ear, and nose :				
<i>a.</i> Conjunctivitis	8			3
<i>b.</i> Corneitis	37			10
<i>c.</i> Sclerotitis	5			
<i>d.</i> Iritis	19			3
<i>e.</i> Cataract	45			41
<i>f.</i> Glaucoma	19	1		11
<i>g.</i> Granular lids	2			1
<i>h.</i> Abscess in sac	1			1
<i>i.</i> Grattinea tarsi	2			1
<i>j.</i> Strabismus	4			3
<i>k.</i> Exophthalmia	1			
<i>l.</i> Hypopion	1			1
<i>m.</i> Polypus	3			3
<i>n.</i> Conical cornea	4			3
7. Of the organs of digestion :				
<i>a.</i> Sore throat	2			
<i>b.</i> Ulceration of mucous membrane	1			
<i>c.</i> Cleft palate	6			5
<i>d.</i> Cancer of lip	3			3
<i>e.</i> " tongue	5			3
<i>f.</i> Strangulated hernia	16	5		16
<i>g.</i> Reducible "	18			
<i>h.</i> Irreducible "	2			
<i>i.</i> Peritonitis	1			
<i>j.</i> Condylomata	4			1
<i>k.</i> Ulcer of rectum				
<i>l.</i> Fistula in ano	33			20
<i>m.</i> Piles	12			4
<i>n.</i> Stricture of rectum	2	1		
<i>o.</i> Prolapsus ani	3	1		1
<i>p.</i> Ulceration of gut				
<i>q.</i> Cancer of rectum	2	1		1
<i>r.</i> " œsophagus				
<i>s.</i> Fissure of rectum	1			1
<i>t.</i> Malformation of rectum	2			
<i>u.</i> Constipation	2			1

Nature of disease.	1873.			
	Total number of admissions.	Total number of deaths.	Complicated with other disease or injury.	Operations.
8. Of the urinary organs :				
a. Albuminuria	1	.	1	
b. Irritable bladder	2	.		
c. Inflamed "	6	.		
d. Hæmaturia	4	.		
e. Retention of urine	8	.		1
f. Strumous disease of bladder	2	.		
g. Stricture	44	4	4	9
h. Stone	2	.		2
i. Hypospadias	1	.		1
j. Enlarged prostate	4	.		1
k. Extravasation of urine	1	.		1
l. Inflamed prostate	1	.		
m. Recto-urethral fistula	4	.		2
n. Pyelitis				
o. Extroversion of bladder	1	.		
9. Of the male organs of generation :				
a. Syphilis	12	.	1	.
b. Secondaries	7	.		
c. Gonorrhœa	4	.		
d. Phimosi	4	.	1	3
e. Paraphimosis				
f. Bubo	11	.		2
g. Hydrocele	9	.		8
h. Hæmatocele				
i. Orchitis	18	.		1
j. Varicocele	2	.		2
k. Scrofulous testis	4	.		2
l. Cancer of scroti	1	.		1
10. Of the female organs of generation :				
a. Abscess of breast	4	.		1
b. Milk-abscess				
c. Chronic mammary tumour	2	.		1
d. Sero-cystic ditto	2	2		2
e. Malignant "	8	.		5
f. Gonorrhœa				
g. Syphilis	2	1		
h. Secondaries				
i. Vesico-vaginal fistula	10	.		6
j. Leucorrhœa				
k. Ovarian tumour	6	.		4
l. Encysted tumour of labium	1	.		1
m. Abscess of labium	3	.		
n. Ruptured perinæum	3	.		3
o. Cystic tumour	1	.		1
p. Condylomata	2	.		2
q. Hysteria	2	.		
r. Scirrhus of vagina	1	.		
11. Of the blood-glands:				
a. Gout	1	.		

Table of Cases of Amputation—1873.

No.	Name, age, No. in Register, surgeon.	Occupation.	Limb amputated, and kind of amputation.	Why amputated.	Result.	Remarks.
1.	John W. Aged 20. (1882, P.)	Paper-stainer.	Left hip.	Cancer of thigh.	Died, 54 days.	He died of sarcomatous deposits in pleura, pericardium, and lungs.
2.	Walter C. Aged 33. (1892, H.)	Servant.	Thigh, lower third; circular.	Caries of femur.	Recovered, 83 days.	No further notes.
3.	Timothy M. Aged 33. (619, L.)	Butcher.	Foot; 'Syme's.'	Caries of ankle-joint.	Recovered.	
4.	George G. Aged 25. (332, Hol.)	Discharged soldier.	Right thigh, lower third; flap.	Cancer of head of tibia.	Recovered, 41 days.	The stump was dressed, after Lister's method, by carbolic acid, and almost entirely healed by first intention; the end of femur sloughed through the anterior flap.
5.	Hiram E. Aged 46. (478, Hol.)	Bricklayer.	Left thigh, lower third; flap.	Abscess of knee-joint.	Recovered, 24 days.	Stump carbolicised, and vessels tied with catgut; the stump healed readily.

6.	James D. Aged 85. (771, L.)	Labourer.	Right thigh; through the knee-joint.	Crushed leg.	Recovered, 39 days.	Stump carbolised, and ves- sels tied with carbolised silk; had delirium tre- mens the day after the operation and was strap- ped down. The delirium tremens passed off in two days, and he made a rapid recovery; good stump.
7.	Edward F. Aged 53. (643, Hol.)	Labourer.	Right thigh, lower third; flap.	Ulceration of cartilages of knee-joint.	Recovered, 34 days.	Stump carbolised, and ves- sels secured by catgut; the cartilages of the knee- joint were found ulcer- ated, and an abscess in the synovial membrane.
8.	Mark S. Aged 25. (654, Hol.)	Labourer	Left thigh, lower third.	Severe bruising of leg and thigh; afterwards formation of abscess in the knee-joint.	Died, 8 days.	Stump carbolised; had se- vere convulsions five days after the operation, and secondary hæmorrhage on the eighth day, from which he rapidly sank.
9.	Fanny T. Aged 14. (916, H.) 1872 Reg.	None.	Left thigh, lower third; cir- cular.	Necrosis of tibia; abscess in the knee-joint.	Recovered, 34 days.	Stump was brought toge- ther by strapping; healed by granulation. A good stump.
10.	Charles B. Aged 43. (1137, Hol.)	Foreman of works.	Right arm, upper third; flap.	Railway smash.	Recovered, 29 days.	Wound healed rapidly.

No.	Name, age, No. "in Register, surgeon.	Occupation.	Limb amputated, and kind of amputation.	Why amputated.	Result.	Remarks.
11.	Anne B. Aged 56. (822, H.)	None.	Right foot; 'Syme's.'	Epithelioma of foot.	Died, 13 days.	After the operation the stump sloughed, and she gradually sank and died from exhaustion. A good stump.
12.	Walter W. Aged 25. (1087, R.)	Labourer.	Left thigh, lower third; circular.	Abscess in knee-joint and ulceration of cartilages.	Recovered, 123 days.	
13.	William P. Aged 87. (1454, Hol.)	Fly-driver.	Left thigh, lower third; flap.	Diffuse cellular inflammation, gangrene of soft parts, and abscess in knee-joint after compound fracture of the tibia.	Died, 2 days.	This patient was in an extremely exhausted condition when operated on, and after the operation he rapidly sank and died.
14.	Thomas J. Aged 47. (1443, Pl.)	Labourer.	Left thigh, lower third; circular.	Ankylosis of knee-joint at a bad angle.	Recovered, 48 days.	The stump was dressed after Lister, which resulted in a good stump.
15.	Alfred E. Aged 15. (1549, Pl.)	Signal-boy.	Right thigh, middle third; flap.	Compound fracture of thigh, due to railway smash.	Died, 7 days.	Secondary hæmorrhage came on in the night of the 7th day, after which he soon sank and died.
16.	Thomas M. Aged 16. (1748 Hol.)	Shopboy.	Right thigh, middle third; flap.	Strumous disease of knee-joint.	Recovered, 29 days.	The limb was amputated after Semmich's bandage had been applied. The stump was carbolicised. The stump healed kindly and was a good one.

17.	John W. Aged 27. (528, H.)	Grocer.	Right thigh, lower third; circular.	Ulceration of cartilages of knee-joint and abscesses.	Recovered, 83 days.	The wound after the operation suppurated freely, and the tissues about the stump retracted; so that the stump was not a very good one.
-----	----------------------------------	---------	--	--	------------------------	--

Summary of Cases of Amputation.

Total number of cases, 17; of which 5 died.

Thigh at hip-joint 1 for disease, of which 1 died.*
 Thigh 4 for injury, " 3 died.
 " 9 for disease, all recovered.
 Foot at the ankle-joint 2 for disease, 1 died.
 Arm 1, recovered.

* The death was from causes unconnected with the operation.

Table of Compound Fractures—1878.

No.	Name, age, No. in Register, surgeon.	Occupation and habits.	Limb.	Nature of accident.	State of fracture.	Treatment and result.	Remarks.
1.	Thomas C. Aged 54. (162, L.)	Labourer.	Left leg.	Not known.	Small lacerated wound; oblique comminuted fracture of both bones.	Died, 28 days.	Pyæmia. Vide P.M. no. 44.
2.	James D. Aged 59. (263, P.)	Labourer. Intemper- ate.	Right arm.	Felloff a board about 6 feet on to ground.	A lacerated wound about size of sixpence, communicating with a fracture of condyles.	Angular arm splint; stimulant. Recov- ered, 61 days.	Wound healed, and fair motion in joint.
3.	James C. Aged 42. (316, L.)	Coach- man.	Left leg.	Fell while jumping from a phaeton.	A small wound, through which the upper fragment of tibia protruded; the posterior tibial was wounded.	End of bone sawn off, and posterior tibial artery tied; As- salini's frac- ture-box; sti- mulant. Died, 22 days.	He died of pyæmia. Vide P.M. no. 73.

4.	Edward E. Aged 61. (159, L.)	Labourer.	Left arm.	Fell from a window 50 feet.	A wound about 1½ inches above the wrist, lead- ing to fracture of both bones.	Straight splint. Died in a few hours.	Insenable when admitted, and remained so till he died.
5.	Harriet C. Aged 60. (267, P.)	None. Temper- ate.	Left leg.	Fell while going down a ladder, her leg caught between the rounds.	Wound about 2 inches in length, leading to an oblique fracture of tibia.	Wound sealed with lint and blood; Assali- ni's fracture- box. Recover- ed, 67 days.	Wound granulated and healed kindly, and firm union took place.
6.	William C. Aged 16. (304, L.)	Carman. Temper- ate.	Right ankle.	Horse fell on his right leg.	A lacerated wound into ankle-joint. End of tibia and fibula com- minuted.	End of tibia and fibula, and ar- ticular surface of astragalus removed. Re- covered, 73 days.	This patient recovered with a good useful limb, being able to walk several miles on it. Vide <i>Med.-Chir. Trans.</i> vol. lvii. p. 137.
7.	George S. Aged 24. (470, L.)	None. Intemper- ate.	Right leg.	Fell from a loft on to a drain-pipe.	Punctured wound about the size of a barleycorn leading down to an ob- lique fracture of the tibia.	Wound sealed with collodion; Assalini's box; stimulants. Died, 16 days.	Soon after admission had symp- toms of delirium tremens; but he died of pyæmia. Vide P.M. no. 89.
8.	Henry P. Aged 63. (514, H.)	Horse- dealer. Temper- ate.	Right leg.	Kicked by a horse.	Contused wound, 1 inch in length, over inner surface of tibia. Mid- dle third fractured ti- bia.	Wound carbol- ised and put in Assalini's box. Left the Hos- pital next day.	This patient wished to be treat- ed at his own home, so that he left at his own request.

No.	Name, age, No. in Register, surgeon.	Occupation and habits.	Limb.	Nature of accident.	State of fracture.	Treatment and result.	Remarks.
9.	James D. Aged 35. (771, L.)	Labourer. Intemperate.	Right leg.	Railway smash.	Lacerated wound, about 1 inch in length, leading to a comminuted fracture of upper end of tibia. Parts around much bruised.	Amputation of the thigh. Recovered, 39 days.	Vide Amputation, no. 5.
10.	Samuel F. Aged 36. (779, L.)	Publican. Intemperate.	Left leg.	Thrown from a cart, and wheel passed over his leg.	Wound 2 lines in length, leading to a comminuted fracture of upper end of tibia.	Wound sealed with blood and lint; Assalini's fracture-box; stimulants. Recovered, 111 days.	Abscesses formed about his leg and thigh, which retarded his recovery.
11.	Henry M. Aged 28. (980, H.)	Carman. Intemperate.	Left leg.	Fell off a loaded brick cart, wheel passed over his leg.	Small contused wound, leading to an oblique fracture of tibia lower third.	Wound sealed with blood and lint; Assalini's fracture-box; side-splints; opiates. Recovered, 70 days.	He had symptoms of delirium tremens soon after admission, which passed off in a few days. An abscess formed over the wound, which delayed healing.
12.	Fanny L. Aged 56. (940, L.)	None. Temperate.	Right arm.	Fell from a wall, about 20 feet.	Small contused wound, leading to transverse fracture of olecranon process of ulna.	Wound sealed with blood; straight splint. Recovered, 50 days.	Besides the compound fracture, she had several ribs fractured, and also right patella.
13.	Samuel C. Aged 54. (1042, P.)	Stableman. Temperate.	Right leg.	Kicked by a horse.	Lacerated wound, about 4 inch in length, communicating with an oblique fracture of tibia upper third.	Wound was strapped with lint; Assalini's box. Recovered, 76 days.	Seventh day after admission an abscess formed over fracture, which was freely laid open. He had several attacks of inflammation about the leg.

14.	Henry Le C. Aged 45. (1221, P.)	Stable- helper. Intemper- ate.	Right leg.	Knocked down by a man, and his leg twisted un- der him.	Small punctured wound, about size of a pin- hole, leading down to an oblique fracture of tibia lower third.	Wound sealed with collodion, and side-splints applied; Asa- lini's box; se- datives. Died, 7 days.	On third day after admission had a violent attack of de- lirium tremens, from which he soon sank and died.
15.	Charles B. Aged 43. (1137, Hol.)	Foreman. Temper- ate.	Right arm.	Railway smash.	Arm completely smashed as high as the shoul- der.	Primary ampu- tation near shoulder-joint. Recovered, 30 days.	Vide Amputation, no. 10.
16.	William H. Aged 35. (1188, H.)	Labourer. Temper- ate.	Right forearm.	Crushed in a pug-mill.	Lacerated wound, about 5 inches in length, and a comminuted frac- ture of the ulna.	Arm-splint, and carbolic - acid lotion to the wound. Died, 16 days.	The wound progressed favour- ably till the 14th day, when symptoms of tetanus set in, from which he died two days after. Vide P.M. no. 210.
17.	Anne G. Aged 30. (1231, P.)	Married. Temper- ate.	Right leg.	Knocked down by a convey- ance, and run over.	Wound about 2 lines in length, leading to an oblique fracture lower third of tibia.	Wound sealed with blood and lint; Asaelini's box; stimu- lants and se- datives. Reco- vered, 52 days.	Wound healed readily, and she left the Hospital with firm union having taken place.
18.	John A. Aged 36. (1366, H.)	Labourer. Temper- ate.	Left forearm.	Fell off a cart, and struck his left el- bow.	Contused wound, about 1 inch over the upper part of the ulna, which is fractured.	Angular ar- splint; carbo- lic acid to the wound. Im- proved, 11 days.	Left the Hospital on the 11th day, the wound having nearly healed.

No.	Name, age, No in Register, surgeon.	Occupation and habits.	Limb.	Nature of accident.	State of fracture.	Treatment and result.	Remarks.
19.	John H. Aged 21. (1422, L.)	Carman. Temperate.	Both legs.	Kicked on both legs by a horse while sitting on a cart.	A contused wound, about 1 inch in length, leading to an oblique fracture of left tibia middle third; and a similar wound, about half an inch in length, leading to an oblique fracture in middle of right leg.	Assalini's fracture-boxes to both legs; wound carbolic. Recovered, 179 days.	Several small portions of bone came away from both tibia, which caused the wounds to be very slow in healing. Some sloughs also occurred about the ankles.
20.	William P. Aged 37. (1454, Hol.)	Cabman. Intemperate.	Right leg.	Fell down while hauling a carriage, and twisted his right leg under him.	A wound, about half an inch in length, leading to an oblique fracture of lower third of tibia.	Wound sealed with collodion; carbolic irrigation; amputation. Died, 15 days.	Soon after admission had symptoms of delirium tremens, and ultimately gangrene of the leg, for which the limb was amputated. See Amputations no. 13.
21.	Francis N. Aged 16. (1546, P.)	Carman. Temperate.	Left leg.	Kicked by a horse while getting out of a cart.	Contused wound, about half an inch in length, leading to an oblique fracture of tibia middle third.	Wound sown up with catgut ligature, and collodion applied; Assalini's box. Recovered, 59 days.	Vide P.M. no. 238. Suppuration took place about the wound. Otherwise the case did well.
22.	Alfred E. Aged 15. (1549, Ft.)	Signal-boy. Temperate.	Left leg.	Railway smash.	A large lacerated wound, leaving open the knee-joint, head of tibia, and end of femur; smashed parts around very much bruised.	Primary amputation. Died, 7 days.	Vide Amputations no. 15. P.M. book, no. 252.

23.	Alfred G. Aged 15. (1877, L.)	Labourer. Temperate.	Left arm.	Fell off some steps, and his arm bent under him.	Wound about 8 lines, extending down to a transverse fracture above the condyles of the humerus.	Angular splint, and carbolic oil to wound. Recovered, 14 days.	Discharged, to be out-patient.
24.	Eliza B. Aged 75. (2024, L.)	None. Temperate.	Left leg.	Knocked down by a cab, and wheel passed over her left leg.	Wound, $\frac{1}{2}$ inch in length, leading to a fracture of left tibia in the middle third.	Wound sealed with blood and lint; Assalini's box. Recovered, 40 days.	This patient progressed favourably from the first, and she was discharged from the Hospital, fair union having taken place.

Summary of preceding Table.

Total number of cases, 24 ; 8 died.

Of the leg 17 ; 6 died : 3 of pyæmia ; 1 of gangrene ;
1 of delirium tremens ; 1 from injuries to his head.
Of the thigh 1, died.
Of the arm 3, all recovered ; 1 primary amputation.
Of the forearm 3 ; 1 died of tetanus.

Table of Cases of Strangulated Hernia—1873.

No.	Name, Age, No. in Register, surgeon.	Occupation.	Nature and duration of hernia; whether truss worn.	Nature of operation and contents of sac, if opened.	Result, and at what period.	Remarks.
1.	Anna G. Aged 34. (355, Hol.)	Needle-woman.	Right femoral, 18 months. Strangulated, 11 hours.	Sac opened; contained a knuckle of small intestine congested, fluid, and omentum.	Recovered, 24 days.	
2.	Robert T. Aged 76. (432, L.)	Labourer.	Right oblique inguinal, 18 years. No truss worn. Strangulated, 24 hours.	Sac opened; omentum was found bruised, in which there had been a knuckle of small intestine.	Died, 8 days.	Peritonitis and granular kidneys.
3.	Susan T. Aged 56. (588, P.)	Married.	Right inguinal, 86 years. Worn a truss. Strangulated, 12 hours.	Sac opened; a knuckle of congested small intestine and some yellow fluid.	Recovered, 15 days.	This patient was treated with a grain of opium twice daily for 8 days. On the 10th day bowels were acted on by an enema.

4.	Anne W. Aged 84. (888, P.)	Nurse.	Left femoral, 18 years. Not worn a truss till within 2 days of operation. Strangulated, 6 hours.	Sac opened; a knuckle of small bowel and a little fluid.	Recovered.	This patient was in this Hospital 3 days before the operation with symptoms of strangulated hernia; she however recovered, and was discharged wearing a truss; but the truss apparently did not fit, as in coughing the rupture came down beneath the truss and became strangulated.
5.	Joseph P. Aged 73. (664, Hol.)	Flah-monger.	Left inguinal oblique. Not worn a truss. Strangulated, 2 days.	Sac opened; contained a knuckle of highly-congested small intestine.	Recovered, 131 days.	At the time of the operation the gut looked almost gangrenous; however, on the 5th day the bowels acted naturally, and on the 10th day fecal matter passed out of the wound, a fecal fistula having formed. The patient ultimately did well, and on leaving the Hospital scarcely any matter came from the fistula, which was very small.
6.	William R. Aged 84. (880, P.)	Mariner.	Right inguinal, 2 months. Not worn a truss. Strangulated, 10 hours.	Sac opened; contained a knuckle of small bowel.	Recovered, 38 days.	

No.	Name, age, No. in Register, surgeon.	Occupation.	Nature and duration of hernia; whether truss worn.	Nature of operation and contents of sac, if opened.	Result, and at what period.	Remarks.
7.	Maria D. Aged 54. (489, H.)	Married.	Umbilical, 12 years. Worn a belt. Strangulated, 4 days.	Sac opened; contained a large quantity of omentum and a piece of intestine about the size of a walnut.	Recovered, 19 days.	A few days after the operation she had an attack of bilious vomiting, which lasted several days. This was relieved by dilute hydrocyanic acid and soda, after which the patient rapidly recovered.
8.	John D. Aged 29. (1341, R.)	Labourer.	Right inguinal, 10 hours. Strangulated, 10 hours.	Sac opened; knuckle of small intestine.	Recovered, 32 days.	There was slight suppuration of the sac.
9.	George W. Aged 50. (1376, R.)	Blind-maker.	Left oblique inguinal, 30 years. Symptoms of strangulation, 4 days.	Sac opened; but nothing was found in it.	Died, 1 day.	On opening the sac no hernia could be detected. Mr. Rouse passed his finger into the ring as far as its internal opening and still could discover no hernia. The wound was accordingly sewn up. After death it was found that a strangulated hernia existed in the pelvis, which could not be detected during life. Vide P.M. no. 221.
10.	Elizabeth D. Aged 70. (1644, H.)	House-keeper.	Umbilical hernia. A belt has been worn occasionally. Strangulated, 2 days.	Sac opened; contained sero-purulent fluid, intestine, and omentum.	Died, 5 days.	The intestines were adherent to the sac in several places. Peritonitis.

TABLE OF STRANGULATED HERNIA.

11.	Elizabeth L. Aged 41. (1684, P.)	Married.	Inguinal hernia for 10 years. Never worn a truss. Strangulated, 24 hours.	Sac opened; contained knuckle of congested gut and some omentum.	Recovered.	The omentum was found adherent to the ring, and was therefore removed.
12.	Jane S. Aged 60. (1768, Hol.)	Married.	Femoral hernia. Always worn a truss. Strangulated, 12 hours.	Sac opened; a knuckle of small intestine and a large quantity of omentum, which was removed.	Recovered.	The omentum was removed on account of difficulty in returning it.
13.	John S. Aged 62. (1927, Hol.)	Labourer.	Inguinal hernia, old. Always worn a truss. Strangulated, 3 hours. Left side.	Sac opened; a large quantity of small intestine, portion of which was highly congested.	Recovered.	This man was operated on by Mr. Hulke of Middlesex Hospital for the same hernia 3 years ago.
14.	Sarah H. Aged 57. (1973, P.)	Servant.	Femoral hernia, right side. Always worn a truss. Strangulated, 27 hours.	Sac opened; knuckle of small intestine and some omentum.	Recovered.	The omentum was removed by a double ligature.
15.	John D. Aged 64. (1976, P.)	Labourer.	Double inguinal hernia.	Sac opened; contained a quantity of small intestine, which was highly congested and bruised, the peritoneal coat being cracked in places.	Died, 5 days.	Forcible taxis had been applied in this case before admission. He gradually sank, and died of peritonitis.

Total number of cases, 16; 5 died; 7 males, 9 females.
Inguinal, 9 cases, two of which were females; 3 males died of peritonitis.
Femoral, 5, all females; 1 died of peritonitis.
Umbilical, 2; 1 died.

Table of Cases of Stone—1878.

No.	Name, age, No. in Register, surgeon.	Occupation and habits.	Symptoms.	Character of urine and stone.	Operation.	Result.	Remarks.
1.	James F. Aged 66. (309, R.)	Schoolmaster. Temperate.	Complained of scalding pains in penis and perineum for 15 months; also incontinence of urine.	Alkaline, contained phosphates, mucus and pus. Three small stones phosphatic in character, weighing 320 gra.	Lithotomy.	Recovery.	The patient still complains of scalding when he passes his urine. Wound quite healed.
2.	John W. Aged 64. (1678, P.)	Labourer.	Pain in bladder when at work and in passing urine.	Alkaline phosphates, blood, and mucus; phosphatic fragments.	Lithotriety.	Recovery.	This patient was much relieved.

Total number of cases, 2.

Lithotomy, 1 male; recovered. Lithotriety, 1 male; recovered.

TABLE OF OPERATIONS NOT INCLUDED IN THE PRECEDING TABLES.

CLASS I. *Operations on the Head, Neck, and Face—1873.*

No.	Name, age, No. in Register, surgeon.	Nature of disease.	Nature of operation.	Result.	Remarks.
1.	Henry J. Aged 44. (175, Pl.)	Cancer of tongue.	Symphysis of chin sawn through, and tongue removed at base by écarateur.	Improved, 49 days.	Wound healed rapidly.
2.	William J. Aged 32. (433, Hol.)	Thoracic aneurism.	Ergotine injected subcutaneously on several occasions.	Improved, 62 days.	The tumour seemed to get more solid and less pulsation in it after the injection of ergotine.
3.	Selina W. Aged 43. (483, Hol.)	Epithelioma of tongue.	Clamp applied, and growth removed. Actual cautery to raw surface.	Recovered, 14 days.	The wound granulated healthily.
4.	William C. Aged 49. (510, Hol.)	Thoracic aneurism.	Ergotine injected subcutaneously. 2dly, galvano-puncture.	Died, 80 days.	The immediate cause of death in this case appears to have been pleurisy. Vide P.M. no. 148.
5.	Emma D. Aged 2. (630, Hol.)	Fissure of hard and soft palate.	Closure of entire cleft.	Recovered, 33 days.	Union nearly complete.
6.	George E. Aged 11. (672, B.)	Cleft of soft palate.	Closure of cleft.	Recovered, 86 days.	Union imperfect.

No.	Name, age, No. in register, surgeon.	Nature of disease.	Nature of operation.	Result.	Remarks.
7.	William W. Aged 72. (713, P.)	Epithelioma of lip.	Removal of a semicircular piece.	Recovered, 7 days.	
8.	John A. Aged 50. (721, L.)	Epithelioma of lip.	Removal of a V-shaped piece of lip.	Recovered, 13 days.	Union took place readily.
9.	Thomas P. Aged 2. (731, Pl.)	Foreign body in trachea.	Laryngo-tracheotomy.	Died, 9 days.	The foreign body proved to be a piece of tobacco-pipe, which was not discovered till after death. Vide P.M. no. 124.
10.	George G. Aged 2 months. (783, Hol.)	Nævus of cheek.	Galvano-puncture.	Recovered, 87 days.	The growth became more solid, and decreased in size.
11.	Charles S. Aged 44. (799, Hol.)	Epithelioma of lip.	Curved piece of lip removed.	Recovered, 13 days.	
12.	George E. Aged 11. (1163, R.)	Cleft of soft palate.	Cleft closed.	Recovered, 75 days.	Union not good, on account of bad health of boy after operation.
13.	Agnes A. Aged 2. (1554, Hol.)	Nævus of lip.	Galvano-puncture.	Recovered, 56 days.	Cure of nævus very nearly complete.
14.	Thomas M. Aged 60. (1559, L.)	Epithelioma of tongue.	Removed by curved scissors.	Recovered, 15 days.	Wound granulated and healed rapidly.
15.	Ernest W. (1763, Pl.)	Cleft of hard and soft palate.	Closure of hard and soft palate.	Recovered, 40 days.	Complete union.

16.	Henry H. Aged 12. (1908, Hol.)	Foreign body in trachea.	Removal by forceps.	Recovered, 3 days.	The foreign body proved to be a piece of bone.
17.	Will H. Aged 53. (576, F.)	Cancer of upper jaw.	Upper jaw removed.	Recovered, 47 days.	There was some amount of suspicious thickening about the wound when he left the Hospital. He returned to Hospital six months after, and the disease had spread considerably. He died shortly after, worn out by the disease.
18.	William H. Aged 55. (1940, H.)	Epithelioma of lip.	Removal of part of lip with scissors.	Recovered, 84 days.	The disease afterwards recurred in the scar, and a gland under the chin became affected. He was then transferred to Mr. Holmes, and galvanopuncture was tried with the gland, but without decided benefit. The gland was afterwards dissected out, and also scar removed. After this he did well, and left the Hospital recovered.
19.	George C. Aged 52. (383, H.)	Epithelioma of face.	Freely removed.	Recovered, 55 days.	The wound had nearly healed when he was discharged, and parts around looked healthy.
20.	Emily C. Aged 8. (530, Hol.)	Congenital fibrous tumour of scalp.	Actual cautery applied on several occasions.	Recovered.	When she ultimately left the Hospital the tumour had nearly disappeared.

Besides the above, there were three operations for removal of polypus, one for harelip, four for dead bone, two for laryngotomy, six for removal of tumours, chiefly sebaceous, two for parotid tumours, and two for epulis.

CLASS II. *Operations on the Upper Extremity.*

No.	Name, age, No. in Register, surgeon.	Nature of disease.	Nature of operation.	Result.	Remarks.
1.	Silas G. Aged 31. (711, Hol.)	Caries of right elbow-joint.	Excision of right elbow-joint.	Recovered, 69 days.	Good movement in joint.
2.	Thomas D. Aged 28. (1827, P.)	Caries of left elbow-joint.	Excision of left elbow-joint.	Recovered, 50 days.	Good movement.
3.	Eliz. H. Aged 15. (1840, R.)	Caries of left elbow-joint.	Excision of joint.	Recovered, 58 days.	Good movement.
4.	Charles M. Aged 10. (1800, R.)	Enchondroma of arm.	Removal of tumour and portion of bone.	Recovered, 48 days.	In this case the tumour seemed to affect the cancellous tissue of the bone. The wound soon healed, however, and he left the Hospital cured.
5.	George W. Aged 54. (1483, R.)	Fibro-cystic tumour of arm.	Tumour removed.	Died, 15 days.	Erysipelas.
6.	Annie V. Aged 29. (649, Hol.)	Enlarged glands in axilla.	Glands dissected out.	Recovered, 30 days.	Wound granulated up, and she had a useful arm.

Besides the above, there were 4 operations for removal of dead bone, 2 for wounds of radial artery, 1 for bursal tumour of hand, 1 for fatty tumour.

See also Table of Amputations.

CLASS III. *Operations on the Thorax—1873.*

No.	Name, age, &c. No. in Register, surgeon.	Nature of disease.	Nature of operation.	Result.	Remarks.
1.	Mary S. Aged 48. (396, H.)	Tubero-cystic tumour of breast.	Amputation of breast.	Recovered, 67 days.	There was a little suppuration which retarded union.
2.	Ellen T. Aged 40. (494, Hol.)	Recurrent fibroid tumour of breast.	Removal of mass.	Died, 49 days.	The liver had carcinomatous deposit in it; she also had bronchitis.
3.	Annie P. Aged 61. (528, H.)	Tubero-cystic tumour of breast.	Amputation of breast.	Died, 47 days.	She had erysipelas and pneumonia, from which she died.
4.	Adelaide M. Aged 42. (666, H.)	Scirrhus of breast.	Amputation of breast.	Recovered, 45 days.	The wound healed soundly.
5.	Belina D. Aged 48. (745, B.)	Scirrhus of breast.	Amputation of breast.	Recovered, 20 days.	Wound nearly entirely healed by first intention.
6.	Hannah S. Aged 42. (1081, H.)	Tubero-cystic tumour of the breast.	Removal of tumour.	Recovered, 27 days.	Wound healed rapidly.
7.	Charlotte B. Aged 38. (1079, L.)	Scirrhus of breast.	Amputation of breast.	Recovered, 23 days.	A good recovery.
8.	Mary P. Aged 58. (1271, R.)	Scirrhus of breast.	Amputation of breast.	Recovered, 32 days.	

No.	Name, age, No. in Register, surgeon.	Nature of disease.	Nature of operation.	Result.	Remarks.
9.	Mary C. Aged 50. (1480, P.)	Scirrhus of breast.	Amputation of breast.	Recovered, 18 days.	Wound healed by granulation.
10.	Hannah S. Aged 52. (1586, Hol.)	Recurrent tumour of breast.	Removal of tumour.	Recovered, 36 days.	
11.	Mary G. Aged 64. (1666, R.)	Myeloid recurrent tumour of breast.	Removal of tumour.	Died, 6 days.	She did not rally after the operation.
12.	Amelia M. Aged 49. (Hol.)	Scirrhus of breast.	Removal of breast and an axillary gland.	Recovered, 94 days.	The mass was thoroughly removed, and sponged with chloride of zinc; it did very well. Two months after this a chloride of zinc arrow-head was put in the gland in the axilla; the gland sloughed out, and the wound healed.

CLASS IV. *Operations on the Abdomen.*

See Table of Cases of Strangulated Hernia. For Ovariectomy, see Operations on Genito-Urinary Organs.

No.	Name, age, No in Register, surgeon.	Nature of disease.	Nature of operation.	Result.	Remarks.
1.	Annie B. Aged 55. (419, R.)	Intestinal obstruction from cancer of rectum.	Lumbar colotomy.	Died, 27 days.	At P.M. it was found that the peritonæum was studded with cancerous deposit.
2.	Cornelia C. Aged 11. (635, Hol.)	Congenital malformation of rectum.	Closure of opening.	Recovered, 26 days.	The operation was unsuccessful.
3.	John L. Aged 58. (1857, P.)	Prolapsus ani.	Triangular piece of skin removed, and edges brought together by sutures.	Died, 32 days.	Erysipelas.
4.	William M. Aged 37. (1208, P.)	Fibro-plastic tumour of the abdomen.	Tumour dissected out.	Recovered, 36 days.	The wound healed by granulation.

Besides the above operations, there were 14 operations for fistula in ano, 5 for hæmorrhoids.

CLASS V. *Operations on the Genito-Urinary Organs*—1873.

No.	Name, age, No. in Register, surgeon.	Nature of disease.	Nature of operation.	Result.	Remarks.
1.	Michael M. Aged 49. (259, P.)	Stricture of the urethra.	Perineal section.	Recovered, 84 days.	He could pass a fair stream of water.
2.	Emily R. Aged 24. (260, Hol.)	Vesico-vaginal fistula, and stone in cavity of bladder.	The labia divided and stone removed.	Recovered, 33 days.	In this case the labia had been joined, completely closing the vagina, and phosphatic deposit formed in the cavity above, filling the bladder.
3.	John L. Aged 52. (347, Hol.)	Stricture of the urethra.	Rapid dilatation by Richard-son's dilator.	Recovered, 41 days.	No. 8 silver catheter could easily be passed when he left the Hospital.
4.	Charles W. Aged 86. (391, Hol.)	Scrofulous disease of the testicle.	Testicle removed.	Recovered, 21 days.	The wound healed rapidly.
5.	Emily R. Aged 24. (607, Hol.)	Vesico-vaginal fistula.	Closing opening.	Recovered, 45 days.	Part of opening closed.
6.	Elisa P. Aged 32. (781, Hol.)	Ruptured perineum.	Closure of rupture.	Recovered, 49 days.	A fistulous opening left.
7.	Daniel H. Aged 29. (784, Hol.)	Fungating testis.	Growth removed and scrotum covered over the wound.	Recovered, 46 days.	The wound healed and did well.

8.	Henry P. Aged 86. (859, P.)	Stricture of urethra.	Immediate dilatation Holt's dilator.	Recovered, 74 days.	After the operation No. 8 silver catheter could be passed.
9.	Harry S. Aged 8. (877, P.)	Extravasation of urine.	Perineal section.	Recovered, 38 days.	In this case the boy had fallen and fractured his pelvis and ruptured his urethra. Opening partially closed.
10.	Harry H. Aged 17. (1019, R.)	Recto-vesical fistula.	Closing of opening.	Recovered, 98 days.	
11.	Robert O. Aged 36. (1295, Hol.)	Stricture of urethra and ab- scesses about the penis.	Immediate dilatation Holt's dilator.	Recovered, 140 days.	Catheter could not be passed without great difficulty before the operation.
12.	Henry P. Aged 37. (1457, Hol.)	Stricture of urethra.	Perineal section.	Died, 70 days.	An abscess formed between the rectum and bladder, and he died of peritonitis.
13.	William W. Aged 86. (1667, Hol.)	Stricture of urethra.	Immediate dilatation Holt's dilator and ure- throtomy.	Died, 19 days.	Peritonitis. Vide P.M.
14.	Anne W. Aged 28. (1714, L.)	Ruptured perineum..	Closure of rupture.	Recovered, 27 days.	Rupture quite closed.
15.	Eliza P. Aged 82. (1747, Hol.)	Ruptured perineum.	Closure of rupture.	Recovered.	See No. 6. Rupture quite closed.
16.	Sarah B. Aged 22. (1852, P.)	Vesico-vaginal fistula.	Closure of opening.	Recovered, 50 days.	Opening completely closed.
17.	Julia J. Aged 21. (1902, Hol.)	Vesico-vaginal fistula.	Closing opening.	Recovered, 34 days.	Opening diminished in size.

Besides the above operations, there were four for hydrocele, two for varicocele, two condylomata, four phimosis, one tumour of labium, one hypospadias.

CLASS VI. *Operations on the Lower Extremity*—1873.

No.	Name, age, No. in Registrar, surgeon.	Nature of disease.	Nature of operation.	Result.	Remarks.
1.	William C. Aged 16. (304, L.)	Compound fracture into ankle-joint.	Ends of tibia and fibula and articular surface of astragalus removed.	Recovered, 73 days.	The patient recovered with a useful foot.
2.	Emily B. Aged 37. (409, P.)	Loose cartilage in knee-joint.	Cartilage secured by harelip-pins.	Recovered, 165 days.	The operation was unsuccessful.
3.	Maria M. Aged 33. (450, R.)	Enlarged bursa patella.	Bursa removed.	Recovered, 24 days.	She had no bad symptoms after the operation.
4.	Isaac R. Aged 22. (867, P.)	Loose cartilage in the knee-joint.	Cartilage secured by harelip-pins.	Recovered, 207 days.	Had a severe attack of inflammation and abscess of the knee-joint after the operation; he also had albuminuria.
5.	Susan G. Aged 9. (897, L.)	Necrosis of head of femur.	Excision of head of femur.	Recovered, 277 days.	This patient was very slow in recovering on account of her having very bad health.
6.	Thomas W. Aged 10. (1216, P.)	Caries of ends of femur and tibia.	Excision of knee-joint.	Recovered, 102 days.	A straight limb and good firm union.

7.	Mary W. Aged 5. (1431, Hol.)	Necrosis of the articular ends of femur and tibia.	Excision of knee-joint.	Recovered, 124 days.	Wound healed, and she can bear her weight on the leg. (This was before she left the Hospital.)
8.	George M. Aged 9. (1832, P.)	Necrosis of head of femur.	Excision of hip-joint.	Recovered, 116 days.	
9.	William Y. Aged 9. (1742, Hol.)	Abscess and caries of ankle- joint.	Excision of astragalus and ends of tibia and fibula.	Recovered, 196 days.	The wound did not go on well after the operation; there was very ex- cessive discharge of pus, from which he seemed to be becoming exhausted, so that amputation was ultimately performed.
10.	Emma S. Aged 28. (1115, Hol.)	Enlarged bursa patella.	Two tumours removed at the same time.	Recovered, 82 days.	The recovery was rather retarded by the formation of an abscess over one of the knees.

Besides the above operations, there were twenty-four for the removal of dead bone, seven for tumours, eight for varix,
eight for division of tendons.

REPORT OF MEDICAL CASES

ADMITTED DURING THE YEAR ENDING DECEMBER 31, 1872.

By F. H. LAKING, M.D. HEIDELB.

THE total number of admissions during the year was 1644; 831 males, 813 females. Out of this number 202 died—127 males, 75 females; and of these 15 were brought in dead, or died within twenty-four hours after admission.

The daily average number of patients was 127; the rate of mortality 11·4 per cent; and the mean residence 24·4 days. The usual classified table of cases is appended. A few notes are here given on cases of interest which occurred during the year.

Fever. There were five deaths from enteric fever.

CASE I. A young woman, *æt.* 19, who had been resident in London for six weeks, and began to fail in health two weeks after. She died on about the twentieth day of the fever. The temperature was never lower than 103°; the highest 105°. At the post-mortem examination considerable ulceration of the intestines was found, but no perforation.

CASE II. A young woman of the same age; had been resident in London fifteen months; sickened for about three weeks, and died on the twelfth day of the disease. There was no post-mortem examination.

CASE III. A woman, *æt.* 30, was admitted on the ninth day of the fever. She progressed very well for twenty-one days, and was becoming convalescent, when she had a fresh attack of shivering and an increase of the fever; she rapidly became insensible, and died on the sixth day of the relapse. At the post-mortem examination, the Peyer's patches and solitary glands were found extensively ulcerated, and there was considerable intratubular nephritis; the kidneys weighed 16 ounces.

CASE IV. A French nursemaid, *æt.* 20; resident in London five months; admitted in the second week of the fever seriously ill, and died in five days from pulmonary congestion. The post-mortem examination showed the lungs to be intensely congested, so much so as to be almost entirely devoid of air; the pulmonary tissue was natural; the solitary and agminate glands of the lower part of the ileum were in an extreme

state of infarction, but no ulceration existed; in the large intestine the solitary glands were much enlarged, and in one or two places slightly ulcerated.

CASE V. Another woman, æt. 25, came in on the sixth day of the fever; she became convalescent in twenty-two days; the temperature was then normal, and continued so for five days; she was able to sit up. There was a return of the fever, and she died exhausted in twelve days. The examination showed extensive ulceration of the lower part of the ileum, especially about the region of the valve; most of these ulcers were recently healed; but in one or two places fresh infarction of the glands had occurred, and ulcers had again formed.

Epidemics. The fatal case of diphtheria presents some features of interest.

Jenny B., æt. 18, stated that she came up to London six weeks before her admission into the Hospital; she was then in perfect health, which she had always enjoyed. In four weeks loss of appetite commenced, with occasional sickness and flying pains about the body. She continued much in the same state for a week (all the time taking very little nourishment), when the external organs of generation began to swell, causing her difficulty in passing water; two days before she was admitted soreness of the throat began. She was a well-nourished and apparently healthy young woman; she complained of shivering and loss of appetite; there was frequent vomiting and much thirst; the throat and fauces were much swollen and inflamed, tongue dry and brown, sordes on the teeth, skin dry, temperature natural, pulse 84, slight diarrhoea. The day after her admission, May 16th, she had not passed any water, the vulva being so swollen; the bladder was emptied by the catheter; the urine was very albuminous, and contained a little blood. 18th. The tongue was now much swollen, and there was great pain in the throat, so that she was almost unable to swallow; passed a little water with the motions, the bowels acting frequently; there was some amount of menorrhagia. 19th. Some bleeding from the mouth, scarcely able to swallow; menorrhagia profuse. 21st. Vomiting frequent, unable to swallow; constant bleeding from the mouth, and menorrhagia; black liquid motions; pulse 96; temperature 99°. 23d. Much lower, but quite sensible; urine very scanty; motions black and offensive; hæmorrhage profuse. 24th. Sensible, but very prostrated; constantly spitting out large clots of blood; much bleeding from bowel and vagina; eight draw sheets were removed during the day perfectly soaked through with blood; pulse 120; temperature 99°. She never became delirious, but died exhausted on the evening of the 24th; the temperature was never higher than 99°. An examination was made seventeen hours after death. There was a thick layer of recent lymph, with a little turbid fluid in the left pleural cavity, the membrane itself was injected and ecchymosed; the right pleura was ecchymosed, but no lymph had been poured out. The lower half of the upper lobe of the left lung was in a state partly of red and partly of gray hepatisation; the consolidated

part sank readily in water; the right lung was congested and a little œdematous. The ventricles of the heart were partly contracted; the edge of the mitral valve was slightly thicker than natural; in the right side was a large decolorised coagulum. The fauces, tonsils, and back of pharynx were coated with a tough and semi-transparent membrane of considerable thickness, which extended rather more than half-way down the œsophagus; the subjacent mucous membrane was intensely vascular, and slight ulceration existed in the tonsils and upper part of the œsophagus; the false membrane was thicker, denser, and more firmly adherent in the œsophagus than on the fauces and tonsils; the epiglottis and structures of the upper part of the larynx were vascular and œdematous, but no false membrane existed; the tongue was much enlarged and hard, and the papillæ were prominent. The liver was natural; the spleen was firm and of ordinary size. The kidneys weighed 19 oz., their surfaces were mottled, the cortical parts were much increased, and the tubes were very extensively blocked with epithelium; the external parts of the vulva were extremely vascular, and were coated with a rough layer of what to the naked eye resembled inspissated secretion of the glands. Nothing abnormal was found on microscopic examination of the skin.

Blood Poisons. There were three deaths from pyæmia. The first in a woman, æt. 44, who was admitted with pelvic cellulitis. The second in a man, æt. 40, who complained of pain in swallowing, and much pain in loins; he died suddenly after two weeks' residence in the Hospital; necrosis of the arytenoid cartilage (most probably syphilitic) was found, with secondary deposits in the kidneys. The third in a man, æt. 22, who had been ill for two weeks with pain in head and frequent shivering; on admission there was much fever and constitutional disturbance, soreness of the throat, with an eruption like scarlet fever over the skin; he became delirious during the first night, and died on the second day. Extensive suppuration was found in the middle and internal ear; on the left side the pus had made its way into the cavity of the cranium; there were numerous scattered circumscribed collections of pus throughout the lungs.

Erysipelas caused three deaths. The first in a man, æt. 64, who was subject to attacks of erysipelas about the head and face; he died on the seventeenth day of the disease from pleuro-pneumonia. The second was in a man, æt. 62, admitted with dyspeptic symptoms eleven days after erysipelas began in the face, from which he died in

three days. The third case, a woman, æt. 28, died on the tenth day from a severe attack of erysipelas of the face.

Rheumatism. All the deaths occurring from acute rheumatism are of interest.

CASE I. Male, æt. 19; ill four days with pains about body and shivering; treated with alkalies and calomel and opium; pain and fever daily increased. On the fifth day after admission pericardial friction sound commenced with delirium; calomel and opium omitted, brandy and quinine with alkalies substituted. He gradually got worse, more prostrated, taking little nourishment, and having no sleep; he died exhausted on the fifteenth day of his disease.

Post-mortem examination showed the pericardium entirely coated with a thick layer of rough recent lymph, the cavity containing about half a pint of clear fluid; on the corpora Arantii of the aortic valves and on the whole of the auricular surface of the free edge of the mitral valve were numerous small red beads of recently-deposited fibrin; around the attached edges of the aortic and pulmonary semi-lunar valves were large extravasations of blood beneath the endocardium. The other organs of the body were healthy.

CASE II. Male, æt. 25; looked much older; had always been intemperate; pains about the body and joints for four days; no previous acute disease. He was a very bloated and unhealthy-looking man. Treated with alkalies and low diet; in two days a low form of delirium commenced; temperature, 104° ; profuse sweating, and a weak pulse; opium given in the place of alkaline salts; complained of no pain. No improvement took place; the temperature continued about 105° ; and he died seven days after admission. No stimulants of any kind were given to him; when the delirium began the swelling and redness quite left the joints.

Post-mortem examination made thirty hours after death, and though the weather was very cold, the body was much decomposed; all the organs were bloodstained and flabby, otherwise they appeared natural; the blood was very liquid.

CASE III. Female, æt. 18; had been ill for a week; loss of appetite, and pain in all the large joints; no shivering; general health always good; had had an attack of acute rheumatism two and a half years before. There was much heat of skin, with swelling and redness of most joints; precordial pain, sounds of heart muffled and indistinct; urine very acid; alkalies with quinine were ordered. On the next day pericardial friction was audible; the pains had diminished in the joints; she was very restless; the face was somewhat dusky. On the third day the friction was very loud all over the region of the heart, with occasional sharp attacks of dyspnoea; six leeches were applied to the chest; she bled considerably; there was some slight relief to the breathing. Fifth day, face dusky, lips livid, great dyspnoea, and acute pain in chest; friction loud and rough, rheumatic pains gone. The dyspnoea became urgent, with constant attacks of syncope, in one of which she died the next day.

Post-mortem examination. The pericardium was thick and opaque, and was greatly distended with clear straw-coloured fluid; both layers of the membrane were thickly coated with recent shaggy lymph. The heart weighed 18 oz.; the muscular walls, especially of the left ventricle, were much hypertrophied; the aortic valves were thick, somewhat puckered and opaque; the mitral valve was much thickened; beads of recent fibrin were found in great numbers on the aortic valves and on the auricular surface of the mitral; all the cavities contained large partially decolorised coagula. The other organs of the body were natural.

CASE IV. Male, æt. 29; a great drinker of beer and spirits; had been ill for two weeks, with shivering and pains flying about the body; the pains daily increased, and became fixed in the joints; was said to have had a previous attack of rheumatism seven years before. When admitted was partly delirious and very shaky; complained of no pain; there was a strong rheumatic smell; the heart's sounds were distant, with loud pericardial friction at base; given alkalies and gin. He died comatose on the third day.

Post-mortem examination. The pericardium contained about two ounces of clear fluid, and the whole of both layers was thickly coated with recent shaggy lymph, beneath which the serous membrane was rough, congested, and ecchymosed; the free edge of the mitral valve was somewhat thicker than natural; the heart was in other respects natural. There were no other important pathological changes.

CASE V. Male, æt. 27; for a week pain and stiffness in ankles, confining him to bed in four days; no shivering; had had no previous illness or attack. When admitted there was fever, with rheumatic smell, pain, and effusion in most of the joints; heart's sounds clear and natural; given alkaline salts of potash and ammonia. The second day there was no increase of pain or swelling, but the action of the heart was slightly irregular; temperature, 102° 6'. On the seventh day he was very restless with precordial pain; a sound was heard at the apex of the heart simulating friction. On the ninth day the bruit was no longer to be heard; he was delirious, and passed everything under him. No improvement took place; he gradually became lower, and died on the night of the eleventh day in hospital.

Post-mortem examination. The pericardium was in all respects natural, the heart was uncontracted; on the auricular surface of the mitral valve were a few recent fibrinous beads of about the size of pins' heads; the endocardium generally was deeply stained, owing to the liquid condition of the blood.

Gout. The fatal case under this heading was one apparently of metastasis.

A man, æt. 48, stated that he had had pain in the knees and ankles for a week before admission, gradually increasing in intensity; he had been subject to attacks like present for many years, likewise having had sharp attacks in the big toes; he was a very free beer-drinker. When admitted he had much pain, with swelling in the left ankle and knee, to a less extent in right leg; both wrists enlarged and painful; occasional

cough, with sonorous sounds throughout lung; heart's sounds a little indistinct, but no bruit; pulse 100; urine, no albumen, very scanty, and loaded with lithates. He was given iodide and bicarbonate of potash every four hours. In a week's time there was hardly any change in his symptoms, except more effusion in the knees and ankles; he passed 12 oz. of urine in the four-and-twenty hours, which, although he was taking large doses of potash every four hours, was intensely acid. On the evening of the tenth day he complained of little pain in his chest, when suddenly he was seized with severe precordial pain and dyspnoea; the heart's action was found to be excessively rapid and irregular, with occasional very long pauses; severe syncope then came on, in which he died.

Post-mortem examination. Tophi were found in both ears, and a thick incrustation of urate of soda on the cartilages of both great toe-joints; both chests contained fluid; the lungs were a little compressed, but their tissue was natural; both layers of pericardium were thickly coated with recent lymph, the membrane beneath it was highly injected and rough; the organ weighed 16 oz.; two of the aortic valves were united at their adjacent edges by an old calcareous mass; the mitral valve was thick and opaque, but efficient; the cavities were full of black coagula, and uncontracted; the liver was gorged with blood, and inclined to be nutmeggy; the spleen was diffuent, its capsule was thick; the kidneys were congested, but otherwise natural.

Syphilis. The case tabulated under this head is somewhat doubtful.

A female, æt. 26, was admitted, complaining of severe pain in head and general loss of strength. The pain in head continued so severe, that she had her scalp shaved; she was an ill-conditioned and badly nourished woman, and reported that she was single. She was treated with tonics and good diet, but no improvement took place in her general state. In the second week symptoms of low pneumonia began, from which she rapidly sank.

Post-mortem examination. On the legs were several oval depressed cicatrices, as if from rupia. Around the margin of the anus were numerous condylomata of large size; there was extensive fibrous thickening and enlargement of the left labium; the base of the left lung was intensely congested, that of the right slightly so; the mucous membrane of the bronchi was congested, and the tubes were full of frothy mucus; the heart was uncontracted and natural; the spleen was soft, several Malpighian bodies were caseous; each kidney contained a small fibroma at the margin of one of the cones.

Cancer. One case of cancer of the brain is worthy of report.

A male, æt. 45, a painter, was admitted in a dull, heavy, and drowsy state. On speaking loudly to him he would answer questions, but would say nothing of his own accord. Very little history could be obtained from him. About five weeks previously, pain commenced in

the head, with dizziness and some loss of vision, coming on quite suddenly; he had had no previous illness. The eyes were injected, pupils contracted; headache with double vision; breath very offensive; no inclination to move while lying in bed; there was not the slightest palsy of any part of the body; tongue very coated; pulse full 80; was ordered mercury and bark. In three days' time there was no decided change; had vomited once or twice. On asking him how he felt, he said he 'seemed to have no power;' pulse 54, weak; pupils very contracted. On the tenth day he had become very drowsy, could only with the greatest difficulty be made to answer questions, and then not sensibly. Towards the afternoon the breathing became laboured, and he died the same evening.

Post-mortem examination. Between the dura mater and the bone, both on the upper and lower surfaces of the skull, was an extremely thin extravasation of blood: it was somewhat dry, and of quite uniform thickness; the convolutions on the upper surface of the brain were much flattened, and the brain substance somewhat anæmic; the lateral ventricles were dilated and distended, with clear white fluid; in various parts of the brain nodules of encephaloid cancer were found; one of about the size of a pigeon's egg in the longitudinal fissure, above and about the centre of the right gyrus fornicatus; tumours exactly similar in all respects were found in the white matter above the posterior cornua of both lateral ventricles, but they were of about half the size of the one described, and, moreover, the central parts of these tumours had broken down. Another of these growths, about the size of a hazel-nut, was situated immediately behind the nates and testes, another occupied the centre of the right side of the pons Varolii. On the left pleura, about the lower margin of the upper lobe, and on its posterior surface, were large masses and nodules of hard encephaloid cancer; the cancerous nodules had spread from the pleura into the substance of the left lung. One or two nodules of cancer were found in the centre of the liver. The cervical glands on both sides of the neck were enlarged, owing to growth of encephaloid cancer.

Acute Tuberculosis. There were five deaths from this disease.

CASE I. A boy, æt. 18, always delicate; for three months swelling of the legs and shortness of the breath. When admitted there was general dropsy and much dyspnoea; he had the appearance of a person suffering from cardiac disease. On examination, no disease of any organ could be detected; urine free from albumen.

Post-mortem examination. Both lungs were thickly scattered with miliary tubercles, which at the apices showed a tendency to soften; there were numbers of miliary tubercles scattered throughout the spleen; miliary tubercles were also found in great numbers in the kidneys, and in most of them central softening had commenced; the mesenteric and lumbar glands were greatly enlarged from deposit of caseous matter.

CASE II. A man, æt. 40, for a year had suffered from dropsy of the

belly and occasional swelling of the legs, frequent vomiting and diarrhoea. When admitted he looked very ill; there was universal dropsy; the abdomen was extremely tender to the touch; much diarrhoea; urine, no albumen. No disease could be perceived in any organ.

Post-mortem examination. The lungs were scattered throughout with miliary tubercles, in most of which central softening had commenced; the peritoneum was everywhere extremely thick, from the presence of yellow scrofulous matter. There was no ulceration of the intestines.

CASE III. A woman, *æt.* 37; had been failing in health for three months, with loss of appetite and general weakness. About three weeks before admission she partially lost the use of the right side, for which she attended as an out-patient; the palsy daily becoming more marked, she was admitted as an in-patient. When seen, complained of pain in right leg and arm; on walking some slight dragging of the right side; was able to speak quite distinctly, but answered questions in a peculiar way; was sick after everything she took. On the fourth day she suddenly became very delirious, and seemed to have lost the power of both legs and arms; the skin became very hot, and face flushed. She did not alter from this condition; there was a constant high temperature and low delirium; coma set in, and she died on the tenth day.

Post-mortem examination. The lungs were throughout studded with miliary tubercles; there were innumerable gray tubercles in the pia mater, covering the left hemisphere, and a still more extensive crop of these tubercles in the left horizontal Sylvian fissure, round and about the middle meningeal artery; many miliary tubercles were found in the spleen, chiefly under the capsule; the peritoneum, covering the pelvic viscera, was studded with gray tubercles.

CASE IV. A man, *æt.* 26; for a month had suffered from swelling of the belly, which the last week had rapidly increased in size, with some amount of pain. He was a very free spirit-drinker; he was a comparatively healthy-looking man; the abdomen was greatly distended with fluid, and very tender to the touch. No diseased organ could be detected in the body; the urine was free from albumen. On the sixth day he complained of great difficulty in breathing; there was much fever, and general distress from abdominal pain. He died the next day.

Post-mortem examination. Miliary tubercles were found in both lungs; there was much fluid in the belly; the peritoneum was intensely congested; the great omentum was infiltrated with tubercles of an opaque yellowish colour.

CASE V. A woman, *æt.* 50; had been out of health for two months with pain about the body, and was unable to follow her occupation of a laundress. Two weeks before admission she took to her bed, and gradually became insensible; when admitted was in a state of collapse; stimulants were given and she slightly recovered. She then seemed in no pain, but could not be got to speak or to take nourishment. She gradually became lower, and died the next day.

Post-mortem examination. Both lungs were studded with miliary tubercles; there was also extensive disease of the lumbar vertebræ.

Anæmia. One death is found under this head.

A woman, æt. 42, stated that for three months she had had pains about the body, with a peculiar tingling in the extremities, and occasional swelling of the face and limbs. The last month there had been difficulty in walking about, with an increase of the swelling; there had been no previous illness. When admitted she was very anæmic; legs œdematous; face and eyelids swollen; belly distended with flatus; heart's sounds regular; there was a rough bruit diffused over the heart's area with the first sound; pulse very weak; occasional vomiting; urine acid, no albumen. There was no decided change in these symptoms, except that she daily appeared to become more anæmic. Two days before her death she had severe rigors. Examination showed both pleural cavities to contain a large quantity of fluid; the lungs were œdematous; the heart was natural and uncontracted; the blood was very liquid; the liver was in an early stage of cirrhosis; the spleen was pulpy; the kidneys appeared natural; the uterus and ovaries were anæmic, but natural.

Brain. One case of sunstroke is of some interest.

A boy, æt. 15, belonging to a training ship, had been reviewed on the morning of his admission, at the Horticultural Gardens. The heat of the day was very great, 89° in the shade; he was found lying under the shade of a tree insensible. When admitted, was quite unconscious, with limp body and pliable limbs; eyes partly open and perfectly insensible to the touch; pupils contracted, and not acting to the light; no squint; skin dry; hot about the head and trunk, but cold over the hands and feet; breathing laboured; pulse hardly perceptible. Ice was applied to the head; brandy administered, with a small dose of calomel. A short time after his admission, the right arm and right side of face constantly twitched, with sharp short convulsive movements. These were at first limited to the right side; but in a short time extended to the left; the tongue was moved incessantly backwards and forwards within the mouth, giving much sound to the respiration; temperature in the axilla, 107·8°; the bowels acted freely, much liquid motion being passed into the bed. Two hours after admission, the pulse had become almost imperceptible; mouth a little drawn to left side; the skin was intensely hot. He was then douched with cold water, and wet clothes placed on the trunk; a little brandy was given by the mouth. A short time later he vomited; the breathing became slow, and finally ceased. The body then rapidly became of a livid hue; temperature immediately before death, 109°.

Post-mortem examination. The body was extremely well formed and well nourished. The head and face were much swollen; there were numerous small ecchymoses along the line of both clavicles, and the neck and chest were of a purple mottled colour; the back of the trunk and ex-

tremities was a very dark purple. The veins of the dura mater and other meninges were gorged with thin fluid blood, and the vessels on the surface of the brain were in a similar condition, so that the gray matter was of a decided pink colour; the arteries at the base of the brain were empty; the dura mater was firmly adherent to the skull-cap. The lungs weighed 17 oz., were everywhere crepitant; the dependent parts were greatly congested; no coagula were found in the pulmonary vessels. The heart was quite uncontracted; the valves were natural; the right ventricle contained a little fluid blood, but no coagulum was found in any of the cavities; the aortic and mitral valves were bloodstained. The blood was thin and fluid throughout the body, in fact, no clot was found anywhere. The venous system of the liver was gorged with thin fluid blood; the kidneys were natural. At the cardiac end of the stomach was a circumscribed patch of intense congestion, but the mucous membrane of the remainder of the viscus was paler than usual; the contents were a moderate quantity of semi-digested food. There was a little venous congestion of the upper part of the spinal cord; the cord appeared natural.

Nervous System. The death from epilepsy is worthy of note.

A man, *æt.* 40, was admitted into the Hospital in October 1870, for fits. The history of his illness was, that a week previously, while at dinner, he suddenly became insensible, and on regaining senses he had lost the power of his left side. When taken in he was stupid, giving rambling answers; there was left hemiplegia, left facial palsy, no cardiac bruit, no albumen in urine. During the first week he had frequent epileptic fits, and in one day he had as many as twenty. Later on he became delirious and noisy, and had to be removed to the refractory ward, where in two weeks' time he became quite quiet. He went out at the end of November with no paralysis and no return of fits. He had been treated principally with iodide and bromide of potassium. He again returned to the Hospital on April 10, 1872. His wife then stated that he had been quite well up to about a week before, when he complained of pain in the head, and had to leave off work. He rapidly again became stupid. When admitted there was some flattening of the left side of face; no loss of power in limbs; when spoken to he answered questions, but in a stupid rambling manner. During the night he became very violent, calling out, &c., and had to be removed to the refractory ward, where he shortly became quieter, but had frequent epileptic fits; in the intervals he would answer questions, but not always correctly; he seemed to know people. The fits then became more frequent; and on the day on which he died, a week after his admission, they became continuous, his death seeming to be caused by exhaustion from the violent convulsions.

Post-mortem examination. The meninges and brain-tissue were most intensely congested; the septum lucidum was rather soft, and a little clear fluid occupied the ventricles; but although every part of the

cranium and its contents was most carefully examined, no other lesion was discovered. The lungs were natural; the ventricles of the heart were uncontracted, and the mitral valve was slightly thickened; the liver was natural; spleen natural; kidneys were slightly uneven on the surfaces.

There was one death from chorea in an adult female; but as no examination was made of the body, the case is incomplete, and is not worthy of record.

Heart. Under this head the deaths are numerous, most of them being cases commonly met with; two of them deserve attention, of which short notes will be given.

A male, æt. 21, admitted June 3; stated that since February there had been pain and some loss of power in the right arm, and for a month had felt so weak that he was unable to follow his occupation (a groom), having frequent attacks of shivering, diarrhoea, and headache; there had been palpitation for five weeks; up to this attack health had always been good. When seen complained of no pain, but a sensation of fulness at the chest, with palpitation of the heart; there was little heat of skin; temperature 100° , with very acid sweat; pupils dilated; no cough; action of the heart very rapid; no increase of cardiac dulness; a soft bruit at base, with the second sound; at apex likewise a bruit with second sound, seeming distinct from murmurs at base; pulse compressible, and simulating aortic regurgitation (a tracing of the pulse showed distinct regurgitation); tongue very coated. June 7. Face pallid; pain in chest, with increased action of the heart; skin hot and dry; occasional shivering; temperature, 102.4° ; bruit at base much increased in loudness; the murmurs at apex having about the same intensity. June 14. Has become very restless, obtains ease in no position; complains much of palpitation and fulness of the chest; sounds of heart quite changed; bruit at base all but gone; natural sounds of aortic valves distinctly heard; bruit at apex still present; temperature, 100° . June 21. Anxious look of face; bruit at base not to be heard; action of heart not quite so rapid, sounds more distant; frequent shivering; temperature, 100° . 23. Had one or two attacks of fainting during the night, and on some slight movement died quite suddenly.

Post-mortem examination. Beneath both visceral and parietal layers on both sides were minute scattered ecchymoses, and on both sides was a large quantity of clear fluid; the tissue of both lungs was natural; the pericardium contained about a quarter of a pint of clear straw-coloured fluid. The heart weighed fifteen ounces; the ventricles were semi-contracted; and outside the left ventricle, just to the left of the origin of the aorta, extending partly on to the auricle, were circumscribed patches of tough semi-transparent organised lymph; the cavities of the heart having been opened from the apex upwards in the usual manner, there was found in the muscular walls at the base of the left ventricle, just below the origin of the aorta, a small round circumscribed abscess, the contents of which were rather liquid pus; the abscess was about the size of a

boy's playing marble, and was of considerable standing, as was evidenced by the dense fibrous and somewhat glistening membrane which enclosed the pus above and rather behind this abscess. Quite at the base of the ventricle, and immediately below the aortic valves, a cavity had been laid open by the scissors, of which the upper part was filled by old coagulum, of considerable density and of opaque yellowish-white appearance; the central parts of this coagulum were somewhat softer than the external layers, but showed no signs of the brick-red softening as ordinarily met with in softening clots in the heart's cavities; the lower part of this cavity was subdivided by dissepiments consisting of semi-transparent membrane resembling recently-organised lymph into one or two smaller compartments, all communicating with one another; these dissepiments were very soft and readily broke down under slight force, and the lining of the whole cavity was of a similar character, save only that it was more dense and much stronger; the contents of these cavities were soft broken-down blood-clots of a yellowish colour. On further examination it was found that the cavity had been formed in the ventricular walls, first by ulceration and absorption of the endocardium immediately below one of the aortic valves, and that by similar processes acting on the muscular walls and other tissues the cavity had gradually increased in size, and had extended behind one of these valves to the depth of nearly one inch. A solid tumour had also been formed of about the size of a horse-bean on the surface of the heart, immediately behind and to the left of the aorta as it arises from the ventricle; the coagulum in this prominent portion of the cavity was of a brown-yellow colour and especially firm; it was covered externally only by the visceral pericardium; the abscess and this blood-containing cavity had no communication, nor did the abscess communicate either with the cavity of the pericardium or of the ventricle. From the lower part of the blood cavity a prolongation of the clot protruded by means of an irregularly-shaped opening, and had become firmly adherent to the under surface of the adjacent aortic valve, and had caused thickening and opacity of its structures, dragging the valve downwards and causing it to assume a fixed position, nearly flat against the endocardium of the ventricle; a further increase to the clot had then taken place, and the coagulum had curled round the free edge of the valve and extended upwards into the aorta for nearly one inch; from its free extremity an ordinary jelly-like decolorised coagulum extended into the innominate artery, but the clot adherent to the valve was very hard, somewhat lobulated and opaque, and almost white in colour. The action of the valve to which it was attached was entirely prevented, but on placing the parts as nearly as possible in their natural position, it was found that the remaining valves would so embrace this coagulum during diastole as to allow of only slight regurgitation. The spleen weighed nineteen ounces; on the anterior margin was an old block of yellow colour and great firmness; the kidneys were large and congested.

Another rare form of heart-disease was found in a man who was brought in dead into the Hospital. The heart weighed 14 oz.; the ventricles were very slightly contracted, and contained a little fluid

blood. The organ presented a most remarkable appearance: throughout its muscular tissue were masses or nodules, dense, tough, and of a whitish colour, which presented all the appearance of fibrous tissue. On microscopic examination they were seen to consist of an extremely delicate and reticulated stroma, in which were imbedded nuclei and small cells in very great numbers. Occasionally a band or so of perfectly fibrous tissue was visible; parts in the neighbourhood of the tumours showed a similar growth between the muscular fibres, which eventually caused wide separation of, but without producing much alteration in, the fibres themselves; but as the growth became more abundant compression of the muscular fibres was effected, and their striæ became either indistinct or invisible. Finally this compression became so excessive that the fibre disappeared entirely, or occasionally a degenerated portion of it would be seen in the midst of the nuclear growth.

There were three deaths with mitral contraction. The first, a boy, who was admitted with hæmoptysis from heart-disease; there was a pre-systolic bruit, which disappeared before his death—he had never had rheumatism. The second, a woman; had never been subject to rheumatism; there was a decided pre-systolic bruit. The third, a man, who had intense dropsy, no rheumatic history; there was no cardiac bruit, only irregularity in the action of that organ.

Blood-vessels. There were four deaths from aneurysm.

CASE I. A man, æt. 34, had suffered from pain in chest for fourteen years. The last year there was severe dyspnœa and palpitation. He died from an attack of bronchitis of two days' duration. There was a large dilatation, the size of the fist, of the first and second portions of the arch of the aorta, rendering the aortic valves inefficient; a round aneurysm, the size of an egg, arose by a rounded opening, with puckered edges, from the front and upper part of the transverse portion of the arch; it was nearly filled with reddish-brown coagula adherent to the walls.

CASE II. A man, æt. 31, admitted with severe hæmoptysis. No history could be obtained; he died in three hours. At the commencement of the thoracic aorta was an aneurism; it was firmly adherent to the bodies of the fourth, fifth, and sixth dorsal vertebræ; laterally the aneurysm had spread more towards the left side than the right; on the right side it bulged beyond the bodies of the vertebræ, but did not adhere to the ribs; on the left side it had spread, pushing the thickened pleura before it, and making thin its outer wall; the aneurysm ruptured into the left pleural cavity, injuring the root of the lungs.

CASE III. A man, æt. 45, brought in dead. The arch of the aorta

was enormously dilated; from the posterior and right sides of this dilated arch were given off four distinct aneurysmal pouches, the largest of which would have held a cricket-ball; the margins of the openings of these sacs were rounded, nodulated, and somewhat elevated; in all the sacs was a layer of firmly adherent decolorised fibrin; the large aneurysm had burst into the right pleural cavity.

CASE IV. A man, æt. 34, for eight years had had pain in the chest and right arm and side of face; the pain for the last year had much increased in severity; six weeks before admission a swelling began at the right side of the base of the neck, with some huskiness of voice, cough, and shortness of the breath, &c.; dated his illness from a strain. When admitted there was considerable dyspnoea and cough, with a pulsating tumour in the region of the right sterno-clavicular joint; no bruit to be heard in the tumour or at the heart; right pulse was weaker than left; right pupil contracted. He was in the Hospital for three months, his symptoms gradually becoming more severe. During a violent attack of coughing he brought up some blood—about a teacupful. The breathing then became very embarrassed, and he rapidly died. The lungs were found full of blood, about an inch above the bifurcation of the bronchi; the trachea was perforated by an ulceration the size of a pea; the arch of the aorta was much dilated; at the transverse portion was a large aneurysm filled with clot; this pressed forward and eroded the sternum and the second and third ribs; the aneurysm involved the origin of the innominate artery, and it was in that place that the ulceration into the trachea had taken place.

Liver. There was one death from acute atrophy.

A man, æt. 47, for a year had suffered from lowness of spirits, for which he took to drinking, daily increasing the quantity of spirit he took. Three weeks before his admission the skin throughout the body commenced to get yellow, rapidly becoming a bright yellow colour; at the same time he became delirious. Up to this attack he had always been healthy. When seen the skin was of a bright gold colour, very hot to the touch; tongue dry and brown; would answer questions sometimes correctly; there was no fulness or pain on pressure of the belly; the liver could just be felt; vomited after everything taken; no cough or pulmonary affection; urine, no albumen, of a bright yellow colour, staining the floor and bed-linen a bright orange; bowels very confined; there were slight and frequent convulsive movements, confined to the right side of the body. No improvement in his state took place; he daily became lower, and died on the fourth day.

Post-mortem examination. Body well nourished; skin a deep yellow; both lungs were in a state of intense congestion, with small patches of pulmonary apoplexy throughout their whole extent; the heart was natural and uncontracted; the endocardium bloodstained; the liver was small and uneven, and the whole organ was in a state of yellow atrophy, especially the lower and middle parts of the right lobe; the spleen was natural; the kidneys were large and congested; the brain was natural.

Skin and Cellular Tissue. Under this head was one death. The case being somewhat of an unusual kind, I have given the name of pemphigus hæmorrhagica to it.

A woman, æt. 46, was admitted on August 12th, and reported that she had had good health up to about six months previously, when she had pains in the legs and general feeling of weakness, so that she was unable to follow her occupation of a cook. She continued in same state up to two weeks before her admission, when she had what she called 'green sickness;' in another week the eyes became bloodshot, and shortly afterwards the eyelids commenced to swell and discharge fluid; at the same time large blisters formed over other parts of the body. Up to this attack she had always been healthy; her catamenia had ceased three years. She attributed her illness to having seen pictures of 'drunken people with blotched faces.' When sent to bed there was great prostration of strength, lying on her back like a fever patient, seeming unwilling to move. Each eye and orbit was occupied by a sanious-looking bruise, from the line of the eyebrow to about the malar prominence, and extending rather beyond the orbit in every direction was a purple discoloration, looking like a patch of fading purpura; both eyelids were closed and deeply excoriated, wet with fœtid sanies; a like patch occupied the right ala and tip of nose; there were two patches on the forehead nearly circular; deep excoriations like ulcerations existed on the side of the neck and front of chest, appearing like deeply ulcerated purpuric spots. On the right arm there were many bullæ, the largest varying in size from a pennypiece to a shilling, with many smaller raised bladders, about a quarter of an inch in diameter, filled with bloody serum; left arm was in a like condition. There were large purple spots on the hips, hard to the touch; the complexion was yellowish; tongue dry, with dull red streaks down the centre; pulse 120, feeble; sweating freely; complained of no pain, and appeared to find it a great effort to talk. The next day, the 13th, had taken nourishment well, and expressed herself feeling improved; the pulse was hardly perceptible; tongue excoriated, and covered with purple blotches; the spots on the hips were this day purple bladders; had passed neither motions nor water. She continued to get lower, though being constantly fed with egg-and-brandy mixture, and died early the next morning. The eruption appeared to commence as purple patches, which were slightly prominent and hard to the touch. The next stage was vesication, the contents of the bladders being bloody serum; the third that of ulceration.

Post-mortem examination. The eyes, face, neck, and chest were covered with the marks of large bullæ, which had burst, leaving a black ulcerative surface; on both arms were several bullæ, which had not burst, and which contained blood-tinged serum. There were firm and extensive pleural adhesions on the left side; both lungs were extremely cedematous; both layers of the pericardium were universally adherent; the heart was totally uncontracted; a small semi-decolorised clot was in the left ventricle, and there were two or three very small purple coagula adhering to

the mitral valve ; the blood otherwise was very fluid ; the aorta and veins were uniformly stained of a light-brown colour, with here and there patches of a darker brown ; the liver was enlarged, weighing 80 oz. ; spleen, pale and soft, weighed 18 oz. ; kidneys, the cortex was mottled, capsule slightly adherent.

Table of Cases admitted into the Medical Wards of St. George's Hospital during the Year ending December 31, 1872.

Disease.	Total ad- missions.	Total deaths.	Remarks.
Fevers :			
Febricula	39		
Enteric	38	5	Two died during a relapse.
Variola	2		
Scarlatina	10		
Measles	6		
Epidemics :			
Diphtheria	1	1	
Whooping-cough . .	3		
Influenza	3		
Blood-poisoning :			
Pyæmia	4	3	The case that recovered was doubtful.
Erysipelas	31	3	
Intermittents :			
Irregular	4		
Rheumatism :			
Acute	41	5	In seven cases the heart was affected, six having pericarditis and one endocarditis.
Simple	124		
Synovial	19		
Muscular	5		
Anæmic	9		
Chronic	27		
Gonorrhœal	7		
Gout :			
Acute	3	1	The death was a case of metastatis producing pericarditis.
Chronic	21		
Lead	4		
Osteo-arthritis	2		
Syphilis :			
Acquired	14	1	
Congenital	1		
Cancer :			
Stomach	9	2	
Liver	1	1	
Pancreas	1	1	
Peritoneum	3	3	
Glands	1	1	
Uterus	24		
Brain	2	2	No death from uterine cancer is accounted for from the short residence of patients with this disease in the Hospital.
Scrofula and Tubercle :			
Acute tuberculosis .	5	5	
Chronic tuberculosis (phthisis)	56	8	
Scrofulous pneumonia	12	6	

Disease.	Total ad- missions.	Total deaths.	Remarks.
Diabetes	7	2	
Hæmorrhages :			
Hæmoptysis . . .	28	2	
Hæmatemesis . . .	18		
Epistaxis	4		
Intermittent hæma- turia	8		
Anæmia	16	1	
Chlorosis	6		
Debility	45		
Brain :			
Hæmorrhage . . .	9	4	
Softening	3	3	
Vertigo	10		
Insolatio	3	1	
Serous effusion . .	4	2	
Congestion	1	1	
Uncertain	1		
Spinal cord :			
Effusion in theca . .	2?		
Atrophy	2?		
Uncertain	2		
Nerves :			
Cephalalgia	7		
Hemicrania	1		
Lumbago	16		
Sciatica	14		
Neuralgia	2		
Hemiplegia	31	2	
Paraplegia	15	5	
Local	4		
Nervous system :			
Hysteria	34		
Hypochondriasis . .	6		
Delirium tremens . .	19	2	Of these, eight were incipient cases.
Acute alcoholism . .	3		
Chorea	21	1	
Epilepsy	20	1	
Convulsions	6		
Palpitation	3		
Insanity :			
Dementia	3		
Amentia	1		
Heart :			
Pericarditis	17	10	Six cases were caused by rheumatism, in one only coming on after admission.
Endocarditis	2	1	
Valvular	37	5	
Dilatation	3	2	
Fatty	3	2	
Syncope	6	2	
Mitral contraction .	3	3	
Ulcerative endocar- ditis	6	6	
Growth in walls . .	2	2	

Disease.	Total ad- missions.	Total deaths.	Remarks.
Blood-vessels :			
Aneurysm	7	4	
Embolism	1	1	
Thrombosis	2	2	
Phlebitis	5	1	
Phlegmasia dolens . .	1		
Glands :			
Leucocythæmia . . .	3	2	
Amyloid disease . . .	3	2	
Goffre	1		
Larynx :			
Chronic laryngitis . .	1		
Croup	1	1	
Lungs :			
Bronchitis	75	8	
Bronchiectasis . . .	2		
Emphysema	11		Of these, nine had bronchitis.
Asthma	1		
Pneumonia	35	14	
Pleurisy	19	4	
Chronic pleurisy . . .	9		
Empyema	5	3	
Fibroid degeneration .	3	3	
Congestion	1	1	This was due to syphilis.
Mouth and fauces :			
Quinsy	16		
Enlarged tonsils . . .	3		
Stomatitis	2		
Sloughing of throat . .	1	1	
Stricture of œsopha- gus	1	1	
Stomach :			
Dyspepsia	46		
Ulcer	1		
Intestines :			
Colic	9		
Constipation	24		
Diarrhoea	20	3	
Blood from bowel . . .	4		
Obstruction	1	1	
Perforation	4	4	One was a case of enteric fever.
Ulceration	1	1	
Lead colic	1		
Liver :			
Jaundice	14	1	
Cirrhosis	23	13	
Gall-stones	3		
Abscess	1	1	
Hydatids	1		
Acute atrophy	1	1	
Peritoneum :			
Peritonitis	11	6	
Chronic peritonitis . .	4	2	

Disease.	Total ad- missions.	Total deaths.	Remarks.
Kidneys :			
Granular . . .	59	20	Three cases were scarlatinal.
Nephritis . . .	20	2	
Pyelitis . . .	5	2	
Renal calculus . . .	2		
Polyuria . . .	2		
Bladder :			
Cystitis . . .	6	2	The deaths were in cases of para- plegia.
Female generative organs :			
Amenorrhoea . . .	5	1	One patient died from disease of the heart ; there was absence of the ovaries, uterus, and vagina.
Dysmenorrhoea . . .	2		
Menorrhagia . . .	9		
Leucorrhoea . . .	6		
Metritis . . .	7		
Fibroid tumour . . .	6		
Prolapse . . .	5		
Prolapse of bladder . . .	1		
Ovaritis . . .	4		
Ovarian tumour . . .	9		
Retroversion . . .	3		
Hypertrophy of uterus . . .	3		
Imperfect involution . . .	1		
Atrophy of uterus . . .	1		
Ruptured perineum . . .	1		
Labour . . .	1		
Pregnancy . . .	1		
Bones and joints :			
Periostitis . . .	13		
Disease of joints . . .	2		
Synovitis . . .	2		
Flat-foot . . .	1		
Caries of spine . . .	3	1	
Skin and cellular tissue :			
Eczema . . .	8	1	
Impetigo . . .	3		
Erythema . . .	7		
Erythema nodosum . . .	8		
Cellulitis . . .	8		
Bronsing . . .	3		
Parasitical . . .	3		
Herpes-zoster . . .	1		
Abcess . . .	9		
Poisons :			
Opium . . .	2		
Iodine . . .	1		
Sulphuric acid . . .	1		
Metallic . . .	1		
Parasites :			
Tenia . . .	1		
Anomalous :			
Abdominal tumour . . .	11		These are tumours whose nature was not made out.
Swallowing foreign body . . .	1		
Obesity . . .	3		

REPORT OF MEDICAL CASES

ADMITTED DURING THE YEAR ENDING DECEMBER 31, 1873.

By F. H. LAKING, M.D. ~~Hennels~~.

THE total number of cases admitted during the year was 1683; 874 males and 809 females. The total number of deaths was 203—141 males, 62 females; of this number 9 were brought in dead, or died within twenty-four hours of admission into the Hospital.

The tabular statement of diseases will be found at the end of this report. This year I have made some slight alteration in the numbers, having divided them into male and female; which I think will be found a useful alteration for the sake of comparison.

The rate of mortality for males was 15.1 per cent; for females 7 per cent. A few notes will be given of interesting cases that occurred during the year.

Fevers. Fourteen deaths occurred from enteric fever; of these eleven were examined after death.

CASE I. A male, æt. 35, admitted on the eighth day of his fever, with well-marked typhoid eruption on body and trunk. On the fourth day symptoms of acute peritonitis came on, from which he rapidly sank. On examining the intestines, the mucous membrane was everywhere thickened, and the Peyer's patches much inflamed. About a foot above the ileo-cæcal valve there was a perforation about $\frac{3}{4}$ in. long by $\frac{1}{4}$ in. broad.

CASE II. A female, æt. 29, came in on the third day of the fever, with much abdominal pain and diarrhoea. There was great prostration of strength and fever. On the tenth day of the disease severe cramp came on in the limbs, and she died on the following day. The intestines showed numerous irregular ulcers of Peyer's glands close to the ileo-cæcal valve. The sub-mucous tissue in this situation was much

thickened. The solitary glands of the cæcum were swollen, but not ulcerated.

CASE III. A female, æt. 24, admitted on the twelfth day of the fever. At the end of the third week the temperature became normal, and she seemed convalescent. In another five days there was a return of the fever, with much delirium and albuminuria; the diarrhoea was excessive, and she died exhausted on the thirty-fifth day of her residence in the Hospital. The peritoneal covering of the lower end of the ileum was extremely vascular, and this part of the bowel was adherent by soft lymph to an adjacent coil. There was extensive ulceration of Peyer's glands. In many instances only the peritoneal coat remained, and was torn by very slight force. There were several ulcers near the ileo-cæcal valve far advanced towards healing, as was also a solitary ulcer the size of a sixpence in the large intestine, about six inches below the valve.

CASE IV. A female, æt. 23, was admitted into the Hospital with rheumatic thickening of the parts surrounding the various large joints and tendon sheaths. The catamenia were irregular. After a residence in the Hospital of five months, symptoms of enteric fever commenced, which rapidly developed itself into a severe form of fever. About the thirty-first day there were severe peritonitis and sickness; she rapidly became collapsed, and died. There was a considerable quantity of brownish fluid in her peritoneal cavity, and the peritoneum itself exhibited a few patches of vascularity. There was extensive ulceration of Peyer's glands, commencing about three feet from the termination of the ileum; and in removing this part of the bowel, fæcal fluid escaped from a perforation a foot above the ileo-cæcal valve. At the situation of the perforation an ulcer existed which had destroyed the mucous and muscular coats; and there were two minute pin-hole apertures in the peritoneal coat.

CASE V. A male, æt. 23, admitted in the second week of the fever, which was of a severe type, with much abdominal pain. He died on the twenty-first day of the disease. There was recent lymph over the whole of the peritoneum, and extensive ulceration of the Peyer's patches in the lower part of the ileum; and about a foot above the valve two coils of intestine adhered by soft lymph. There was a perforation of the bowel, extravasation of fæces having been prevented by the adhesion.

CASE VI. A female, æt. 18, admitted on the tenth day of the fever. She was a weak and debilitated girl, and was likewise suffering from syphilis. The fever was of a severe type, and she died quite comatose during the third week. There was extensive ulceration of Peyer's glands in the lower two feet of the ileum, in many places having fæcal-stained sloughs adherent to them. The rest of the intestines presented a natural appearance.

CASE VII. A male, æt. 19, came to Hospital in the second week of

the fever. Had been resident in London three months. (A fellow servant was in the Hospital at the same time with fever.) He died on the twenty-first day of the fever. There was increased vascularity of the lower part of the ileum, and the Peyer's patches in that portion nearest the ileo-cæcal valve were much swollen. There was, moreover, ulceration of many of these glands higher up in the bowel.

CASE VIII. A female, æt. 17, admitted on the twelfth day of the disease. There was a profuse typhoid eruption on belly and chest. She died on the nineteenth day of the fever. The lower part of the ileum was somewhat vascular, and there was swelling of the Peyer's patches near the ileo-cæcal valve. Above these swollen glands there were a few small ulcers affecting the patches. The rest of the bowel was natural.

CASE IX. A female, æt. 22, admitted on the eighth day of the disease. There was little heat of skin, slight abdominal tenderness, no eruption, little deafness. The fever daily increased in severity, with constant vomiting and profuse sweats. She gradually became more exhausted, and died on the twenty-eighth day of the fever. Post-mortem showed the whole of the ileum and the ascending colon vascular; the solitary glands were prominent and swollen, and the Peyer's patches extensively ulcerated. Large shreddy sloughs were attached to many of the glands, the ulceration of which was especially extensive about eighteen inches above the valve.

CASE X. A female, æt. 25, admitted on the fifth day of the disease. There was abdominal tenderness and diarrhoea, with typhoid eruption. On the twentieth day the temperature was normal, and she seemed to be getting convalescent. She remained in this state for five days, when suddenly the belly became very swollen, and her state prostrated; but she complained of no pain. In another three days she was in a low and wandering state, and she passed some blood from the bowel. She gradually became lower, and died on the thirty-second day of the fever. In the cavity of the belly was a small quantity of grumous fluid; the peritoneum was injected and covered with recent lymph. There was extensive ulceration of Peyer's glands, the ulcers being largest and deepest about two feet above the ileo-cæcal valve. At this situation a perforation had occurred, allowing fecal extravasation into the belly. In the upper part of the ileum were some ulcers in process of healing, and there were a few circular ulcers in the ascending colon.

CASE XI. A female, æt. 18, admitted on the 14th day of the fever; the fever was severe, and there was much delirium. No improvement in her state took place, and she died exhausted on the 19th day of the fever. At the examination there was found extensive ulceration of the Peyer's glands, and the solitary glands in the lower part of the ileum; to the surface of many of those nearest the ileo-cæcal valve there adhered large sloughs.

Scrofula and Tubercle. There were seven deaths from acute tuberculosis.

CASE I. A boy, *æt.* 8, had been in the surgeons' ward with disease of the hip-joint, when it was noticed that he moaned in his sleep, and complained of pain in the head. When examined there was heat of skin; he was very drowsy, and answered questions sulkily; the breathing throughout the lungs was harsh, but otherwise natural. June 18. Much heat of skin; no vomiting; great drowsiness; complains of great pain in the head; the jaw clenched, but could be separated by a little force; pupils about normal. 20th. During the night there had been some rolling of the head, and plucking of the bedclothes; no squint; passes *feces* and urine involuntarily; occasionally calls out 'My poor head!' 23d. The breathing is more laboured, and the legs are occasionally tossed about; pupils contracted; there is also priapism. No change took place, and he died on the 24th.

Post-mortem examination. The membranes of the brain were extremely congested; at the base were numerous opaque yellow miliary tubercles, chiefly along the course of the vessels. The brain was congested, and the lateral ventricles were distended with clear fluid; the septum was softened, but entire; the right lung was congested, and contained many gray miliary tubercles. The left lung contained similar tubercles, and was hepatized at the base; scattered over the peritoneum were numerous miliary tubercles.

CASE II. A girl, *æt.* 11, had had good health up to a week before her admission on February 3d, when she first complained of feeling ill; having a pain in the head, and a sensation of sickness. Three days later the pain in head had much increased, with sickness after food. On the morning of her admission she became insensible; when seen was small for her age, and thinly made; was quite unconscious of everything around her; the pupils were dilated, and acted slightly to the light of a candle; eyes insensible to the touch; rolled about in bed, constantly calling out 'My poor, poor head!' which was the only thing she said; with difficulty was made to swallow. 5th. Has been very restless, and screaming out, was removed to the refractory ward; there was occasional twitching of the limbs of the right side. 6th. Became perfectly quiet, and died in the evening.

Post-mortem examination. The membranes of the brain were extremely congested; the convolution on surface somewhat flattened, and on the upper surface and base of both hemispheres was purulent lymph; this was most abundant at the base and in the Sylvian fissures; there was about two ounces of clear fluid in the ventricles. The lungs were generally congested, and throughout both were scattered gray tubercles. These were most numerous at the lower part, where was also some pneumonic consolidation.

CASE III. A girl, *æt.* 13, was in good health until a week before admission (Feb. 1), when she first complained of pain in the head, and

sickness after food. In two days it was noticed she had a slight squint in the right eye, and there was an increase of pain in the head. She then stated to her mother that she was 'quite well, only she had a severe pain in the head.' She continued much in same state up to her admission, gradually becoming more irritable; she likewise complained of pain in right eye, and double vision. When seen was dull and stupid; there was internal squint of right eye; would not swallow without great difficulty; face dusky, pupils dilated; passed everything under her. Feb. 3d. Face livid; respiration short and catching; coarse râles in throat, extremities cold; during the afternoon roused up a little, and was able to answer questions. 4th. Answers questions not always correctly; seems to understand things going on around her; there was much increase of sensibility, calling out loudly if anybody touched her. 6th. Much abdominal distension and pain. 7th. During the previous evening, and all the day, was very noisy, calling and screaming out loudly; and she died quite suddenly in the evening. The head, on *post-mortem examination*, showed the brain to be greatly congested; and in the pia-mater at the base and in the Sylvian fissures were a few gray granulations; at these situations was also some recent lymph; the ventricles contained about three ounces of clear fluid; the brain substance was natural. No other part of the body was examined.

CASE IV. A female, æt. 22, had complained of headache for about three months; seven days before admission pains commenced about body, with frequent sickness and much constipation; she daily became more drowsy, and at night delirious. When admitted on Feb. 13th she complained of much pain in head and chest; the eyes were injected; skin hot and dry; constantly moving arms about; frequently calling for her mother; pupils semi-contracted; no squint. 15th. Constant wandering, with much abdominal distension; there had been no action of the bowels since admission; picking bedclothes; frequent vomiting; pupils acting to the light. 17th. In the morning and first part of day she was not delirious, but complained of much pain in the head; towards the afternoon she became very delirious: coma set in, and she died. The brain and membranes were much congested; there were miliary tubercles and also recent lymph on the surface of the brain at its base, and along the Sylvian fissures; there were also a few tubercles on the upper surface of the organ; the ventricles contained about one ounce of clear fluid; and the septum, although entire, was much softened; the lungs were congested, especially at the bases, and there were numerous gray miliary tubercles scattered throughout both.

CASE V. A female, æt. 48, had gradually been getting dull in intellect for two months before admission, and frequently complained of numbness in her extremities. Shortly before she was seen she was found lying on the ground in a state of insensibility; there was complete insensibility and loss of power on left side of body; power impaired on the right side, face drawn to the right side, left pupil con-

tracted. She died eight hours after her admission. Examination showed the convolutions of the brain flattened, and in the pia-mater on the upper surface of the hemispheres were a few miliary tubercles; at the base, and especially along the course of the basilar vessels and those of the Sylvian fissures, were numerous similar tubercles mixed with firm lymph; the ventricles were greatly distended by clear colourless fluid, and the septum lucidum much softened; both lungs contained great numbers of miliary tubercles; on the upper surface and in the substance of the liver were a few miliary tubercles; the spleen and kidneys contained a few similar tubercles.

CASE VI. A female, *æt.* 16, had complained of not feeling well for six weeks; about three weeks before admission the appetite fell off, with pains in the head and about body; she continued much in same state up to two days before she came in, when she had shivering, intense headache, and during the same evening she became delirious, in which state she remained. When seen there was fever, no abdominal pain or tenderness, no squinting; increased sensibility of the skin, constantly calling out about her head; no examination of the lungs was made, from her restless condition; urine contained a little albumen; coma gradually set in, and she died on the third day. At the *post-mortem examination* the membranes of the brain were found congested, and there were a few miliary tubercles in the pia-mater on the surface of the hemispheres; about the basilar vessels and those of the Sylvian fissures were numerous miliary tubercles surrounded by tough lymph; there were also a few such tubercles in the white substance of the hemispheres and in the left optic thalamus; both on the surface and in the substance of both lungs were great numbers of miliary tubercles; the peritoneum contained miliary tubercles; throughout the whole intestines were scattered miliary tubercles and ulcers; these latter were all small and round, and did not affect Peyer's patches, but were most numerous in the jejunum; all the abdominal organs contained tubercles; the bladder presented numerous small round ulcers resembling those in the intestines.

CASE VII. A male, *æt.* 13, had been ailing for ten days, being restless in his sleep, grinding his teeth and calling out; was very irritable, refused food, and there was much constipation; he was feverish, the skin being hot and dry; called out on being touched, constantly complaining about his head; there was no squint, the pupils were equal and semi-contracted. On the second day of his residence in the Hospital he had a fit, in which he died. At the examination, the pia-mater on the upper surface of the brain was found to contain scattered miliary tubercles; about the vessels at the base were many miliary tubercles, and a considerable quantity of tough semi-transparent lymph; the lungs were free from tubercle; on the peritoneal covering of the liver were a few scattered miliary tubercles; there were also a few tubercles on the surface of the kidneys.

Blood-vessels. There were eight fatal cases of aneurysm, all of which were examined after death.

CASE I. A male, *æt.* 41, four months before admission was seized suddenly with pain in the chest, cough, and loss of voice to a certain extent; had always been healthy up to this attack; he suffered from dyspnoea on any exertion, with much expectoration; the heart's action was indistinct—first sound short and sharp, second sound at base prolonged into a soft murmur; pulse of an aortic character, the right stronger than the left; much dropsy of the lower extremities. He was in the Hospital about three months, his symptoms gradually putting on a severer aspect; towards his termination he became very noisy and delirious, the dropsy becoming intense. *Post-mortem examination* showed the heart to be much hypertrophied and its cavities dilated; the aorta was extremely atheromatous; the termination of the transverse and the whole of the descending portion of the arch was greatly dilated.

CASE II. A male, *æt.* 40, for eight months had complained of palpitation on any exertion; there was no other pain or discomfort about the body; the cardiac area was much increased, the left side of chest visibly heaving with each systole of the heart; at the sternal end of fourth rib there was a soft systolic bruit, much increased by any movement of the patient; one day, on being examined in bed, he had an attack of hæmoptysis, and died in about half an hour. The left pleura was found to contain a large blood-clot; the heart was natural; the last three inches of the thoracic aorta was dilated into a large aneurysm, which had opened by a hole that admitted the little finger into the lower part of the left pleura; a great part of the sac of the aneurysm was filled with laminated clot, and on the anterior and inner aspect of the vessel the blood had made its way between the outer and middle coat, which were thereby separated for about two inches above the main sac of the aneurysm.

CASE III. A male, *æt.* 40, had suffered for a year with pain in his right side, which had been more or less constant, and increased by any exertion; three weeks before his admission the pain so increased in severity that he was unable to move about, being obliged to keep his bed, but obtained no sleep. He had the aspect of much suffering, lying on his back with the legs drawn up; the upper part of the abdominal cavity was much distended by a pulsating tumour having no decided line of termination; the heart's sounds were natural, and no decided abnormality was detected in the chest. Two days after his admission sudden syncope came on, in which he died. The right pleura was found full of blood; at the lower end of the thoracic aorta, projecting from its posterior and right surface, was an aneurysm the size of a large orange; this communicated with the aorta by an opening an inch in diameter, and had burst into the right pleural cavity; a considerable quantity of laminated fibrin had been deposited upon the inside of the sac, forming in some parts a layer the third of an inch in thickness.

CASE IV. A male, *æt.* 39, for ten months had had pain in his right side and back, always much increased by any exertion; two years before, he had an aneurysm in the left popliteal space, which was treated by pressure and entirely disappeared. He was a healthy-looking man, complaining of much pain in back and neck, the pain being transmitted down right arm; the voice had become husky and he suffered much from dyspnoea; to the right of the sternum, on a level with the fourth rib, was a pulsating tumour about three inches in diameter; there was a soft bruit in it with the second sound of the heart; the heart was displaced downwards, the apex beat was between the seventh and eighth intercostal space. The dyspnoea daily increased, his colour became dusky, and he obtained no rest. On the fourth week of his residence in the Hospital he had a very severe attack of dyspnoea, and it was thought advisable to open the throat; no improvement in his state took place, and he died half an hour after the operation, apparently from syncope. At the *post-mortem examination* it was found that the ascending and commencement of the transverse portion of the arch was dilated into a large aneurysm, which pressed upon the right side of the trachea and slightly displaced that organ; the blood in the aneurysm was quite fluid, and there was no fibrinous deposit upon its walls; in the left ham was an aneurysm of the popliteal artery of the size of an orange, which was filled with laminated fibrin.

CASE V. A male, *æt.* 42, for nine months had complained of pain in the right chest; this pain had gradually been increasing in severity with frequent hard cough, the cough always increasing the pain; during the severest attacks of pain he had a numb sensation down both arms, especially the right; the right chest was prominent and visibly pulsated; there was a sharp aching pain in back about the ninth dorsal vertebra and corresponding rib of right side; to the right of the sternum, on a line with the fourth rib, was a circular area of dulness about five inches in diameter, slightly prominent, and pulsating distinctly from the heart; in this tumour was heard a faint systolic bruit; he had a hard metallic cough, causing him much pain in right chest. He died quite suddenly after he had been in the Hospital six weeks. The *post-mortem examination* showed the right pleura full of blood; the ascending and transverse parts of the arch were dilated into a large globular aneurysm, which was adherent in front to the sternum and had eroded that bone, and had burst into the right pleura, with either cavity of which it communicated by a ragged opening, admitting the points of two fingers; to the posterior wall of the sac was adherent a small amount of laminated clot.

CASE VI. A male, *æt.* 36, had suffered with pain in right chest for eighteen months; this pain frequently extended into the right side of face and neck; he had a constant desire to cough, with an inability to do so from the pain it caused him in the right chest; the veins of the right side of chest and neck were much dilated, and under the right clavicle was felt a pulsating prominence having a loud systolic bruit

in it ; the heart's sounds were natural and right pupil contracted. Two weeks after his admission he lost the power of the right arm ; his attacks of dyspnoea were frequent and urgent, in one of which he was bled with much relief. He lived for another four days, and died during an attack of dyspnoea. On removing the front of the thorax a large tumour was seen, which occupied the upper half of the right thoracic cavity, and extended nearly to the left border of the sternum. This tumour was an aneurysm of the arch of the aorta, which communicated with that vessel by an opening an inch in diameter ; the tumour had by its pressure eroded the upper ribs and the sternum ; the second rib had given way near its angle, its fractured ends projecting into the cavity of the aneurysm. The aneurysm was lined by about half an inch of laminated clot, and contained besides a large quantity of recent coagulum.

CASE VII. A male, *æt.* 43, had suffered with pain in the breast-bone for six months ; this pain was always worse on any rapid movement or pressure. Occasionally there would be pain down the left arm, producing a numb sensation of the limb. The chest was full and prominent about the sternal notch, and extremely painful to pressure, the pain running through to the back. The upper part of the chest in mid-sternal region was dull to percussion, with a perceptible impulse and a soft bruit with first sound of heart. The heart's sounds were natural and clear ; hardly any air entered into left lung ; the left pupil was dilated. During the time he was watched in the Hospital he had frequent attacks of hæmoptysis ; and two days before he died the blood-spitting was continuous.

Post-mortem examination showed both the lungs to contain much blood in the air-cells, and the bronchi a large quantity of blood-clot. From the transverse portion of the aortic arch there projected upwards and backwards an aneurysm, which communicated with the vessel just behind the orifice of the innominate artery. No distinct opening could be seen communicating with the lungs.

CASE VIII. A male, *æt.* 38, said that for two months he had had pain in the chest, and cough. Shortly afterwards his voice became very husky, and difficulty of swallowing commenced ; so that he was unable to take any solid food, on account of which he rapidly lost flesh. When admitted he was emaciated, with an anxious expression ; there was loss of voice, with frequent attacks of a metallic cough. On any attempt to swallow great pain was produced. No disease could be detected in his larynx, nor in the lungs, except that there was some deficiency of air entering the left lung. Three weeks after his admission he had frequent attacks of spasm of the glottis, and he now complained at the angle of the right scapula. The attacks of spasm now became so frequent and urgent, that his throat was opened. This operation was followed by much relief ; feverish symptoms set in, his strength failed him, and he died exhausted three days after the operation. At the *post-mortem examination* the left lung was found to be

in a state of red hepatisation. About the centre of the aortic arch was an aneurysm the size of a hen's egg, the sac of which was formed by the dilated arterial walls, and which communicated with the aorta close to the orifice of the left subclavian artery. The sac had given way behind, and blood had made its way both upwards and downwards in the cellular tissue connecting the œsophagus and trachea.

Liver. There was one death from abscess in the liver.

A man, æt. 36, was brought to the Hospital urgently ill. His friends stated that two weeks before he was taken ill with an attack of shivering and pain at the epigastrium, more especially at the right side. The pain was much increased by any movement or deep breath, and he shortly became delirious. On the day of his admission a cough commenced. He had suffered from no previous illness or diarrhoea; seven years previously he had been operated upon for fistula in ano; was reported a temperate man. When seen, was very prostrated, having been brought a long journey. There was orthopnoea, deafness of the right ear, with a heavy dragging pain in the right side; skin soft, and perspiring freely. The whole of the right lung except the extreme apex was dull to percussion, with deficient respiratory sounds and ægophonic resonance. There were coarse moist sounds throughout the left lung; heart's sounds were weak and distant; pulse feeble, 120; tongue coated with soft fur; much thirst. There was scarcely any cough, but coarse râles in the throat. He was supplied freely with stimulants, but died the second evening of his admission.

Post-mortem examination. There was slight bulging of the right mammary region; the right pleura was covered with a layer of tough lymph $\frac{1}{4}$ of an inch in thickness, and its cavity was distended with clear dark-yellow fluid. The right lung was compressed into a small mass against the spine. The heart was a little displaced by the distension of the right pleura; the pericardium contained two ounces of yellow fluid; the peritoneal cavity contained a few ounces of dark-coloured offensive grumous fluid; the membrane was vascular, and coated with a thin layer of recent lymph. The inferior half of the right lobe of the liver was converted into a large abscess with ragged walls, containing thick pus. There were several smaller purulent collections in other parts of the organ, some of them near its upper surface. The tissue of the gland between these collections was natural. The kidneys were in a state of granular degeneration. There were several contracted cicatrices of former ulcers in the cæcum and commencement of the ascending colon. About four inches from the valve was a large oval ulcer, with thickened edges and base, and several smaller ones in process of healing. The rest of the bowel was natural.

Table of Cases admitted into the Medical Wards of St. George's Hospital during the Year ending December 31, 1873.

Disease.	Total ad- missions.	Males.	Females.	Total deaths.	Remarks.
Fevers :					
Febriacula	29	12	17		
Enteric	55	23	32	14	Of the deaths, ten occurred in young women. Two had subsequent ne- phritis.
Scarlatina	12	5	7		
Measles	9	6	3		
Typhus ?	1	.	1		
Epidemics :					
Diphtheria	1	1			
Whooping-cough . .	4	2	2	3	
Blood-poisoning :					
Pyæmia	1	1	.	1	
Erysipelas	20	8	12	4	
Intermittents :					
Tertian	2	2			
Irregular	2	2			
Rheumatism :					
Acute	32	18	19	1	Eight cases had pericar- ditis, three of which came on after admission.
Simple	114	58	56		
Synovial	18	8	5		
Muscular	3	2	1		
Anæmic	1	.	1		
Chronic	21	15	6		
Gonorrhœal	12	11	1		
Gout :					
Chronic	37	34	3		
Osteo-arthritis	5	1	4		
Syphilis	4	.	4		
Cancer :					
Stomach	6	4	2	6	
Abdominal glands . .	8	5	3	8	
Liver	6	4	2	6	
Intestines	1	1	.	1	
Ovary	2	.	2	2	
Kidney	2	2	.	2	
Esophagus	1	1	.	1	
Bones	1	1	.	1	
Uterus	13	.	13	1	One death only, from the short residence these pa- tients have in the hospital.
Scrofula and tubercle :					
Acute tuberculosis . .	7	2	5	7	One of the cases occurred in an adult.
Chronic tuberculosis .	44	24	20	12	
Diabetes	11	8	3	2	

Disease.	Total ad- missions.	Males.	Females.	Total deaths.	Remarks.
Hæmorrhages :					
Hæmoptysis	14	11	3		
Hæmatemesis	9	3	6		
Hæmaturia	1	1			
Epistaxis	1		1		
Purpura	2	1	1		
Diathesis	1	1			
Anæmia	13	1	12		
Chlorosis	1		1		
Debility	53	18	40		
Brain :					
Hæmorrhage	11	8	3	11	
Softening	1	1			
Vertigo	3	1	2		
Tumour	2	1	1	1	
Meningocele	1	1			
Uncertain	5	5			
Spinal cord :					
Locomotive ataxy . .	3	3			
Paraplegia	11	8	3		Three of these cases de- pended upon disease of the vertebrae.
Infantile paralysis .	2	2			
Myelitis	1	1			
Nerves :					
Cephalalgia	5	4	1		
Hemicrania	1	1			
Lumbago	11	9	2		
Sciatica	19	17	2		
Neuralgia	5	3	2		
Hemiplegia	36	20	16	2	In twenty-one of these cases the palsy affected the left side.
Local	2	1	1		
Nervous system :					
Hysteria	33	3	30		
Hypochondriasis . .	9	6	3		
Delirium tremens . .	10	10		2	Four were incipient cases.
Alcoholism	10	6	4		
Chorea	24	7	17	2	
Epilepsy	21	16	5		
Insanity	7	4	3		
Heart :					
Pericarditis	12	4	8		
Endocarditis	1	1			
Valvular	53	33	20	19	
Dilatation	3	1	2	2	
Mitral contraction .	9	5	4	9	
Ulcerative endocar- ditis	9	7	2	9	
Hypertrophied . . .	3	3		2	
Blood-vessels :					
Aneurysm	13	12	1	8	
Embolism	3	1	2	2	
Phlebitis	7	1	6		
Glands :					
Leucocythæmia . . .	3	3			
Amyloid	2	1	1	2	

Disease.	Total ad- missions.	Males.	Females.	Total deaths.	Remarks.
Larynx:					
Laryngitis . . .	3	2	1	2	Tracheotomy was performed in one of the fatal cases.
Chronic laryngitis . .	2	.	2		
Abscess in thyroid body . . .	1	1			
Lungs:					
Bronchitis . . .	76	46	30	8	
Chronic bronchitis . .	16	11	5	1	
Emphysema . . .	8	5	3		
Asthma . . .	1	1			
Pneumonia . . .	38	32	6	12	
Pleurisy . . .	32	21	11		
Empyema . . .	5	3	2	5	
Fibroid degeneration.	2	2	.	1	
Abscess . . .	3	3	.	2	
Caseous pneumonia . .	7	3	4	6	
Mouth and fauces:					
Sore throat . . .	16	5	11		
Tonsillitis . . .	6	2	4		
Enlarged tonsils . . .	4	2	2		
Stomatitis . . .	4	2	2		
Stomach:					
Dyspepsia . . .	22	11	11		
Gastritis . . .	3	.	3		
Vomiting . . .	2	2			
Intestines:					
Colic . . .	12	9	3		
Constipation . . .	49	13	36		
Diarrhoea . . .	19	13	3		
Obstruction . . .	2	1	1		
Perforation . . .	3	2	1	3	One was a case of typhoid fever.
Ulceration . . .	1	1	.	1	Complicated with abscess of the liver.
Enteritis . . .	1	1			
Typhlitis . . .	2	2			
Stricture . . .	1	.	1		
Liver:					
Jaundice . . .	11	8	3		
Cirrhosis . . .	24	20	4	10	
Abscess . . .	1	1	.	1	
Hydatid . . .	1	1			
Calculus . . .	1	.	1		
Peritoneum:					
Peritonitis . . .	5	4	1	2	
Chronic peritonitis . .	3	1	2	1	
Kidneys:					
Granular . . .	18	12	1	6	
Nephritis . . .	48	30	18	12	Three of these cases were due to scarlet fever, one of which died.
Renal calculus . . .	2	1	1		
Amyloid . . .	2	2	.	2	
Bladder:					
Cystitis . . .	5	3	2		
Male generative organs:					
Orchitis . . .	2	2			
Gonorrhoea . . .	1	1			

Diseases.	Total admissions.	Males.	Females.	Total deaths.	Remarks.
Female generative organs:					
Dysmenorrhœa . . .	1	.	1		
Menorrhagia . . .	5	.	5		
Leucorrhœa . . .	5	.	5		
Metritis . . .	81	.	81		
Prolapsus . . .	1	.	1		
Ovarian tumour . . .	11	.	11		
Uterine tumour . . .	9	.	9		
Ulceration of uterus . . .	1	.	1		
Labial tumour . . .	1	.	1		
Polypus uteri . . .	1	.	1		
Cystic disease of the chorion . . .	2	.	2		
Post-partum hæmorrhage . . .	2	.	2		
Ovaritis . . .	1	.	1		
Bones and joints :					
Disease of joints . . .	6	4	2	1	One death was from pyæmia.
Periostitis . . .	18	8	18		Fourteen of these cases were due to syphilis.
Synovitis . . .	1	1			
Muscles :					
Muscular atrophy . . .	3	3			
Torticollis . . .	2	2			
Skin :					
Eczema . . .	5	2	3		One was a case of clonic spasm.
Erythema . . .	4	3	1		
Erythema nodosum . . .	1	.	1		
Psoriasis . . .	7	3	4		Four cases were syphilitic.
Rupia . . .	3	3			
Herpes . . .	2	.	2		
Pemphigus . . .	1	1			
Impetigo . . .	6	3	3		
Cellulitis . . .	2	.	2		
Cloasma . . .	1	.	1		
Alopecia . . .	1	.	1		
Urticaria . . .	1	.	1		
Abscess . . .	3	3			
Poisons :					
Carbolic acid . . .	.	1	1	1	
White precipitate . . .	1	1			
Ammonia . . .	1	.	1		
Oxalic acid . . .	1	1			
Atropia . . .	1	1			
Lead poisons :					
Lead gout . . .	2	2			
Lead colic . . .	4	4			
Parasites :					
Scabies . . .	2	2			
Toenia . . .	1	1			
Anomalous					
Abdominal tumour . . .	13	6	7		These are tumours whose nature was not made out.

INDEX.

- ABDOMEN**, cancer of, 217.
Abdominal diseases, unusual forms of, 183.
Abdominal walls, abscesses of, 133.
Abscesses of abdominal walls, Ogle on, 133.
Ammonia, carbonate of, its use in diabetes, 241.
Amphibia, effect of putrid fluids on, 17.
Amputations, tables of, in 1872, 291; in 1873, 334.
Aneurysm, cases of, 281, 325.
Aneurysm, diagnosis of, 173; cases of non-pulsating, 190, 192.
Arsenic, its value in medicine, 239.
- Barnes, Dr. E. G.**, on zymotic diseases, 59.
Belladonna, its uses, 243.
- Calcium**, iodate of, as disinfectant, 227.
Camphorated phenol as disinfectant, 231.
Capillary circulation, effects of putrid fluids on, 17.
Carcinoma in abdomen, 217, 223.
Carter, Mr. B., on ophthalmic therapeutics, 89.
Cases, on a simple mode of tabulating, 251.
Cavafy, Dr., on capillary circulation, 17.
Cerebral disease, Dr. Fenwick on, 29.
Cheadle, Dr., on exophthalmic goitre, 81.
Confinement, cases of death after, 47.
- Diabetes**, carb. of ammonia in, 241.
Diagnosis of aneurysm, 173; causes of difficulty in, 182, 196.
Disinfectants and antiseptics, Moore on, 227.
Dislocation of hip, anatomy of unreduced, 169.
- Exophthalmic goitre**, Cheadle on, 81.
Factory children, flat-foot in, 211.
- Fenwick, Dr.**, on cerebral disease, 29.
Fistulous openings through abdominal walls, Dr. John W. Ogle on, 183.
Flat-foot, 211; causes of, 213; treatment of, 216.
Fractures, compound, table of, for 1872, 292; for 1873, 338.
- Gallic acid**, its value in medicine, 239.
- Head**, injuries of, 277, 319.
Hernia, tables of operations for, in 1872, 303; in 1873, 344.
Hip, dissection of unreduced dislocation of, 169.
Holmes, Mr., on diagnosis of aneurysm, 173.
- Iodate of calcium**, as disinfectant, 227.
- Jones, Handfield**, cases of psoriasis, 67.
- Laking, Dr.**, report of medical cases in 1872, 361; in 1873, 381.
Lee, Mr. S., on dislocation of hip, 169.
Lee's, Dr. R. J., notes of midwifery lectures, 39.
Lee, Dr. R. J., report of obstetrical department, 257.
- Mackay, Dr.**, on the value of certain drugs, 237.
Maroet, Dr., on consumption a form of septicæmia, 199.
Medical cases, tables of, 1872, 377; 1873, 391.
Medical reports for 1872, 361; for 1873, 381.
Medical School, list of prizemen at, xii.
- Meningitis**, Dr. Fenwick on, 29.
Mercury, its use in medicine, 246.
Midwifery lectures, Dr. R. J. Lee's, 39.
Midwifery, Mr. R. P. Wintle's notes on, 53.
Moore, Mr. S. W., on iodate of calcium, camphorated phenol, and salicylic acid, as disinfectants and antiseptics, 227.

- Nerves, pain from pressure on, 219.
- Obstetrical department, report of, 257.
- Ogle, Dr. W. (of Derby), on a simple mode of tabulating cases, 251.
- Ogle, Dr. John W., on two cases of carcinoma in the abdomen, with observations on pain as a result of pressure on nerves, 217.
- Ogle, Dr. John W., on some cases of unusual abdominal disease, 133.
- Operations, tables of, in 1872, 308; in 1873, 349.
- Ophthalmic therapeutics, B. Carter on, 89.
- Pain from pressure on nerves, 219.
- Phenol, camphorated, as disinfectant, 281.
- Phthisis, a form of septicæmia, 199.
- Pirogoff on mistakes in diagnosis of aneurysm, 175.
- Prisemen at the Medical School, list of, xii.
- Psoriasis, Dr. H. Jones on, 67.
- Puerperal blood-poisoning, 127.
- Pulsation, causes of absence of, in aneurysms, 194.
- Pulsating tumours, non-aneurysmal, 173.
- Putrid fluids, on injection of, 17.
- Quain, Mr., on unreduced dislocation of hip, 170.
- Report of obstetrical department, 257; surgical, for 1872, 278; for 1873, 319; medical, for 1872, 371; for 1873, 381.
- Roberts, Mr. C., on flat-foot, 211.
- Salicylic acid as disinfectant, 232.
- Septicæmia, connection of with phthisis, 199.
- Smith, Dr. H. Fly, on puerperal blood-poisoning, 127.
- Smith, Dr. Stephen, on diagnosis of aneurysm, 174.
- Stone, tables of operations for, in 1872, 306; in 1873, 348.
- Surgical reports for 1872, 278; for 1873, 319.
- Surgical cases, tables of, 1872, 287; 1873, 329.
- Tables of medical cases for 1872, 377; 1873, 391.
- Tables of surgical cases for 1872, 287; for 1873, 329.
- Tapping exploratory in aneurysm, 180.
- Trachea, foreign bodies in, 283, 326.
- Vaccination, Dr. Willson on, 1.
- Walter, Mr. C., on death after confinement, 47.
- Willson, Dr., on vaccination, 1.
- Wintle's, Mr. R. P., notes on midwifery, 53.
- Women's and children's diseases, notes of Dr. R. J. Lee, 89.
- Zymotic diseases, Dr. E. G. Barnes on, 59.

END OF VOL. VII.

LONDON:

ROBSON AND SONS, PRINTERS, FANCY ROAD, N.W.

N.B. 157